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Training Manual
(TRAMAN)



Basic Military Requirements

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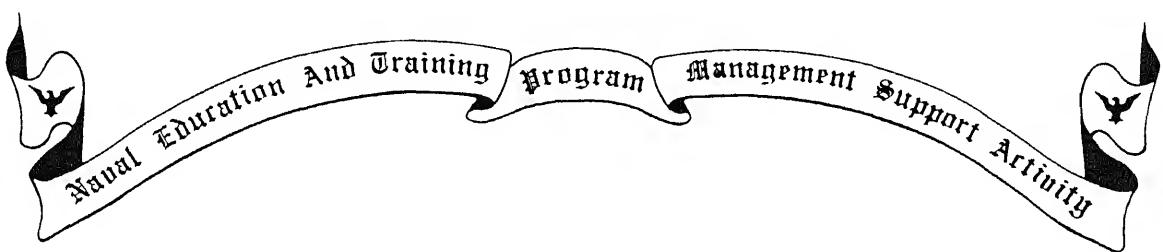
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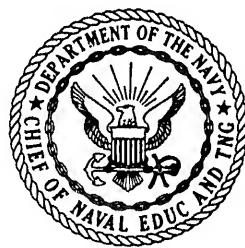
Although the words "he," "him," and "his" are used sparingly in this manual to enhance communication, they are not intended to be gender driven nor to affront or discriminate against anyone reading this text.

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BASIC MILITARY REQUIREMENTS

NAVEDTRA 12043



*1992 Edition Prepared by
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PREFACE

Basic Military Requirements, NAVEDTRA 12043, training manual (TRAMAN) and the nonresident training course (NRTC) form a self-study training package covering the basic knowledges required of the men and women of the U.S. Navy and Naval Reserve. Designed for individual study rather than formal classroom instruction, the TRAMAN provides subject matter that relates directly to the naval standards for the apprenticeship (E-2/E-3) rates. The naval standards, used as minimum guidelines in the preparation of this manual, are found in the *Manual of Navy Enlisted Manpower and Personnel Classification and Occupational Standards* (Volume I), NAVPERS 18068F.

An NRTC has been designed for use with this TRAMAN. This course consists of individual assignments. It must be ordered separately from the TRAMAN. Ordering information is available in NAVEDTRA 12061. Each assignment is a series of questions based upon the textbook. You should study the textbook pages given at the beginning of each assignment before trying to answer the questions in your NRTC.

This TRAMAN and associated NRTC were prepared by the Naval Education and Training Program Management Support Activity, Pensacola, Florida, for the Chief of Naval Education and Training.

Your suggestions and comments concerning this TRAMAN and its NRTC are invited.

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THE UNITED STATES NAVY

GUARDIAN OF OUR COUNTRY

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

WE SERVE WITH HONOR

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations as we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

THE FUTURE OF THE NAVY

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

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INTRODUCTION TO MILITARY REQUIREMENTS AND THE NAVAL STANDARDS

The United States Navy has always placed great emphasis on the pride and professionalism of its personnel. In keeping with this strong tradition, the Navy has taken a different approach in teaching military subjects by developing individual military requirements training manuals. These manuals are divided into the basic military requirements (BMR) for apprenticeships and advanced requirements for third class, second class, first class, chief petty officer, and senior and master chief petty officer. These manuals cover the MINIMUM naval standards required for advancement in rate.

The purpose of the separate manuals is to define more clearly the duties and responsibilities of the enlisted Navy person at all rate levels. That simply means if you are studying for advancement to the apprentice level, you will study material that applies to the apprentice. This is not to say that the apprentice performs only at that level. Many times the needs of the service require an apprentice to fill the billet of a junior petty officer. That has always been the case and will continue to be true.

Because the manuals have been separated according to rate, you can now study the required material at the appropriate time in your career.

NAVAL STANDARDS

Naval standards (NAVSTDs) are those qualifications that specify the minimum knowledges required of all enlisted personnel in the Navy. Your knowledge of NAVSTDs will be tested on the military/leadership examination. Unlike the Navy occupational standards, which state the tasks enlisted personnel are required to perform, naval standards, for the most part, state the knowledges required.

NAVSTDs encompass military requirements, essential virtues of professionalism and pride of service in support of the oath of enlistment, and maintenance of good order and discipline. They also include knowledges pertaining to the well-being of Navy personnel that directly contribute to the mission of the Navy.

NAVSTDs apply to all personnel at the specified paygrade except where specific limitations are indicated. Primarily two factors make these qualifications necessary—the basic requirements of duty at sea and the requirements of duty in an armed force. For example, all Navy personnel must know certain elements of seamanship and must be prepared to assume battle station duties. Both men and women must learn the general orders for a sentry, be able to stand a security watch, and possess certain skills and knowledges needed for their own protection and survival. Certain other qualifications, mainly in clerical and administrative duties, have been added to the military and seagoing requirements because knowledge of them is important for all enlisted personnel regardless of occupational specialty.

This training manual covers the naval standards (military requirements) for E2 and E3 personnel.

NOTE: Prior to studying for advancement, you should check the latest naval standards in NAVPERS 18068F and the *Bibliography for Advancement Study* (NAVEDTRA 12052). Both of these publications are revised annually and may reflect changes in the naval standards for your rate and the occupational standards for your rating. Your educational services officer will be able to provide you with the latest editions of these publications.

CHAPTER 1

OUR HERITAGE

LEARNING OBJECTIVES

Learning objectives are stated at the beginning of each chapter. These learning objectives serve as a preview of the information you are expected to learn in the chapter. By successfully completing the nonresident training course (NRTC) for this training manual (TRAMAN), you indicate you have met the objectives and have learned the information.

Upon completion of this chapter, you should be able to do the following:

1. Identify the contents of the Constitution.
2. Identify the contents of the oath of enlistment.
3. Describe the history of the Constitution.
4. Describe the type of government exercised by the United States, the three branches of the U.S. government, and the functions of the different parts of the U.S. government.

I . . . do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; and that I will obey the orders of the President of the United States and the orders of the officers appointed over me according to regulations and the Uniform Code of Military Justice. So help me God.

Oath of Enlistment

OATH OF ENLISTMENT

Taking the oath of enlistment began your Navy career. Maybe you didn't pay much attention to the words you spoke when you took the oath and haven't thought about it since. However, you made a personal promise as you added your name in repeating the oath. This promise should guide you as you develop your Navy career.

The oath of enlistment is not hard to remember; you don't have to memorize it word for word. What you should remember is you promised to "support and defend the Constitution" and to obey the orders of those people senior to you.

Later chapters of this manual will discuss the issuing of orders by your seniors, the chain of command, and Navy Regulations. They will explain the chain of command and Navy Regulations. In this chapter you will learn a little about the basis of our government—the Constitution of the United States. If you are going to support and defend the Constitution, you should know what it is and what it contains.

THE CONSTITUTION OF THE UNITED STATES

The United States Constitution is the most important document of the United States. It is the basis of the United States government as well as the laws of the country. All other laws and

regulations of the United States must be in agreement with the Constitution. (A little later, this chapter will show you how this agreement is ensured.) Of all the written constitutions in the world, the United States Constitution is the oldest.

Before discussing its content, we will present a brief history of the Constitution.

HISTORY OF THE CONSTITUTION

The United States Constitution didn't just happen. It wasn't written by some people who decided to sit down and create a country. Various events led to the creation of the Constitution.

The areas of our country that became the 13 original states were Colonies of England in the mid-1700s. The king of England governed these Colonies and appointed a governor to rule each one. Because the king allowed the Colonies to trade only with England, they exported all their raw materials to and purchased all manufactured goods from England.

Problems arose between the colonists and England as the years passed. When the English Parliament passed several tax laws that affected the colonists, the growing discontent focused on the problem of "taxation without representation."

The Colonies formed Committees of Correspondence to communicate the problems of the colonists to King George of England. The Colonies soon realized they could benefit by acting together to resolve common problems of trade, taxation, and so forth. To discuss these common problems and decide on a plan of action, they convened a Continental Congress.

The Continental Congresses

The First Continental Congress met in Philadelphia on September 5, 1774. The word *continental* is representative of the entire American Continent. The word *congress* means a formal assembly of representatives to discuss problems. This First Continental Congress had 56 "deputies" representing all the Colonies except Georgia. Each "state" had one vote regardless of size.

At this meeting, the Congress produced a statement of rights it believed England should grant to the colonists. It also condemned taxation without representation and the presence of the British army without the consent of the colonists. Since the colonists were still willing to let the English Parliament regulate American

trade, the Congress did not request the Colonies' independence from England. In October 1774 it petitioned the king of England with a list of complaints. The last action this Congress took was to agree to convene a Second Continental Congress on May 10, 1775.

Before the Second Continental Congress met, fighting had broken out between the English and the colonists. Even so, many people in the Colonies simply wanted to clear up the problems between the English and the colonists. In fact, some of the delegates to the Second Continental Congress were told not to approve any action that would separate the Colonies and England.

The Second Continental Congress convened on May 10, 1775. The colonists' rioting against the British (the revolutionary war) forced the delegates to take actions they hadn't planned on. For example, they appointed George Washington as Commander in Chief of the Continental (American) army on June 15, 1775. The Continental Congress also felt forced to act as the provisional government for the Thirteen Colonies. In this capacity, the Congress issued money, established a postal service, and created the Continental navy. (More about the early United States navy will be presented in chapter 2 of this book.) The Congress also took action that is the basis for the birthday of the United States of America.

The Birthday of the United States of America

We celebrate the birthday of the United States on July 4th. We consider 1776 as the year the United States was born. What special event happened on July 4, 1776? Since we consider that date the birthday of the United States, you might think it was the date Congress adopted the Constitution. You might also think that was the date the Thirteen Colonies joined together to become the United States of America. Neither is the case. Actually, the Constitution and the name *United States of America* came several years later. On July 4, 1776, the Second Continental Congress approved the Declaration of Independence. We consider this event as the birth of the United States of America.

The Declaration of Independence

The Declaration of Independence is one of the most important documents in American history. It is not only important to the United States of

ica but to the entire world. This document more than declare the Thirteen Colonies independent of the English king; it changed the people thought about government.

Thomas Jefferson wrote most of the Declaration of Independence. He believed the United States should have a written document stating the reasons for the Colonies' breaking away from England. For this reason the Declaration of Independence has five parts: (1) the preamble, statement of political theories, (3) a section listing the injustices of the English king, (4) the cause of the colonists to resolve their differences with the English king, and (5) the actual declaration of the Colonies as free and independent.

The entire text of the Declaration of Independence should be available at your library or in a library. If you read it, you will find the fourth, and fifth parts are pretty straightforward; but the preamble and second part are what make this document so important. Before discussing these portions, we must first review a little about the governments of that time.

In England and most of Europe were monarchies, which means they were ruled by a king or queen. Monarchs ruled by "divine right"—the belief that God had given them the right to rule. The power of government came from God to the monarch. The people existed to serve the monarch and the government. As a representative of God, the monarch's job was to take care of the people. The people were responsible to God and the monarch. In short, the power of government came from God and resided in the monarch, and the people served the government.

Many writers and philosophers had challenged the concept of "divine right" before the Declaration of Independence. In fact, the Parliament of England had successfully proven that the people could remove a monarch. However, no one had replaced a monarchy with another form of government based upon a challenge to divine right. That is what makes the first two parts of the Declaration of Independence so important. These two parts state that God does not select people to be rulers. They state that "all men are created equal" and that God grants "certain unalienable rights" to everyone. Some of these rights are "life, liberty, and the pursuit of happiness." Governments exist to ensure no one's these rights taken away.

One of the most important ideas expressed by the Declaration of Independence is that a government derives its power from the "consent of the

governed." In other words, government exists to serve the people rather than for the people to serve the government. In addition, the government owes its existence and responsibility to the people.

The statement of political theories in the Declaration of Independence goes on to say that if government no longer performs the function of protecting the people, it should be replaced. This change of government would not be done lightly or for trivial reasons. In fact, people would endure grave injustice before they would try to change the government. The American Colonies had put up with many wrongs (listed in the third part of the document) before they took action to change the government.

The first sentence of the Declaration of Independence is called the preamble. It states that when the people need to change the government, they should make their reasons known. That is the purpose of the Declaration of Independence.

In addition to the Declaration of Independence, the Second Continental Congress approved the Articles of Confederation.

The Articles of Confederation

The Articles of Confederation was the basis for the first central government of the Thirteen Colonies. The Colonies did not want a strong central government for two basic reasons. First, the Colonies did not trust government after their experience with England. Second, the various Colonies differed widely in attitudes.

Under the Articles of Confederation, the Colonies formed a league of sovereign (independent) states. A Congress of delegates chosen every year by the states made up the central government of the league. The Congress could manage foreign affairs, declare war, make treaties, control Indian affairs, raise armies, build a navy, coin and borrow money, and establish post offices. The states kept all other powers. Every important measure the Congress passed had to be approved by 9 of the 13 states. No amendment could be made to the Articles of Confederation unless approved by Congress and ratified (officially approved) by every state.

The central government had no right to tax. Instead, each state contributed money based upon the value of the privately owned land in that state. The central government could pass laws, but it had no way to enforce them. The government had no central control of foreign trade. It had neither a chief executive, like the President, nor national courts, like the federal courts of today. Compared

with the individual state governments, the league of states had a weak central government.

Although weak, the central government managed to function through the revolutionary war and to negotiate a favorable peace treaty. After the war, problems began to appear. The central government had to depend on the states' acceptance of its laws. In many cases some states simply refused to accept a law. Since the central government could not tax, it was always in debt. Because all of the states had to approve any amendments to the Articles of Confederation, changing these conditions was practically impossible.

The central government obviously needed more power if the nation was to survive. Finally, in 1787, a Constitutional Convention was held in Philadelphia for the purpose of abandoning the Articles of Confederation and replacing it with what became the Constitution of the United States. The Constitution went into effect on March 4, 1789.

CONTENT OF THE CONSTITUTION OF THE UNITED STATES

The development of the Constitution was the result of the same issues that led to the development of the Articles of Confederation: a distrust of a strong central government and the varied interests of the individual states. However, the development of the Constitution resulted from an issue that went a step further. The Articles of Confederation had failed because the central government had too little power.

Since the Constitution needed to strengthen the central government without giving it too much power, it included a system of checks and balances. This system provided control of the central government while preventing control by a dictator through eight specific systems of checks and balances:

1. The states versus the central (federal) government or a balance of power between the state government and the central (federal) government
2. A balance of power between the Senate and the House of Representatives
3. A balance of power between the legislature and the President
4. A balance of power between the courts (judicial branch) and the Congress

5. A check between the Senate and the President in regard to appointments and treaties
6. A check by the people of the power of their representatives
7. The state legislatures' balance against the Senate in the original election of senators
8. A balance of power among the states to elect a President through the electoral college

The Constitution included certain compromises to handle the different interests of the individual states. For example, one compromise resolved the difference of opinion about each state's representation within the federal government. Large states believed each state's votes should be based on the population, while small states believed each state should have the same number of votes. (Under the Articles of Confederation, each state had one vote.) The compromise on this difference of opinion resulted in a two-part legislature—the House of Representatives and the Senate. In the House of Representatives, the number of representatives a state had depended on the population of the state. In the Senate, each state was allowed two senators regardless of the population of the state.

The Constitution consists of a preamble and seven articles. The articles are sometimes divided into sections. (Article I has 10 sections.) The following paragraphs briefly describe the preamble and the various articles of the Constitution:

- The preamble gives the reason for and introduces the Constitution.
- Article I mainly concerns Congress. It establishes the powers of Congress, the limits on those powers, and the number of senators and representatives for each state. It describes the qualifications required of senators and representatives and the method of choosing senators and representatives. It also explains the specific duties of the House of Representatives and the Senate.
- Article II concerns the President. It describes the powers of the President, the qualifications for holding the office of President, and the method of choosing the President.
- Article III concerns the judicial branch of the government (federal courts).

- Article IV deals with the relationships between states and between the state and federal governments.
- Article V details the procedure for amendment of the Constitution.
- Article VI provides for the adoption of all previous debts by the new government and proclaims the Constitution as the supreme law of the land.
- Article VII concerns the ratification of the Constitution.

AMENDMENTS TO THE CONSTITUTION

Earlier, we stated that the Constitution of the United States is the oldest written constitution still in effect. Part of the reason the Constitution has lasted so long is because it can be amended. An amendment can be an addition to the Constitution or a change to one of the provisions. This ability to be added to or changed makes the Constitution a dynamic (changing and moving) document rather than a static (fixed and unmoving) one.

Congress used the right to amend the Constitution even during its ratification. Several of the states were concerned that the Constitution contained no specific statement of human rights. As a result of this concern, the First Congress presented 12 proposed amendments to the state legislatures in 1789. The states did not ratify the first two proposed amendments. The first of these concerned the size of the population required for the number of representatives for each state. The second proposed that no law changing the pay of members of Congress could take effect until an election of representatives had taken place. The states ratified the other 10 proposed amendments, which became the first 10 amendments to the Constitution. These 10 amendments are known as the Bill of Rights.

The Bill of Rights

The first 10 amendments to the Constitution limit the power of the federal government and guarantee certain rights to all the people.

The First Amendment provides four safeguards for the American people. These are known as Freedom of Religion, Freedom of Speech, the Right of Peaceful Assembly, and the Right to Petition for a Redress of Wrong. Freedom of

Religion guarantees the government will not establish a state religion and guarantees you the right to practice any religion. Freedom of Speech gives you the right to say, write, or print almost anything you like. The Right of Peaceful Assembly allows you to meet peacefully with others to talk about any subject. The Right to Petition for a Redress of Wrong allows you to ask the government to correct something you think is wrong.

The Second Amendment concerns the right of the people to “keep and bear arms.” This amendment ensures the United States has a citizen militia rather than just a large national army. The National Guard in each state is one type of citizen militia.

The Third Amendment prevents the people from having to share their homes and food with soldiers during peacetime. It also provides for the passing of laws to state how the government will manage a need to “quarter” soldiers during wartime.

The Fourth Amendment concerns search warrants. It says no “unreasonable” search or seizure shall be made. When a search warrant is used, there must be “probable cause” and the warrant must specify what is to be searched.

The Fifth Amendment prevents the federal government from bringing a person to trial for a serious crime until a grand jury has ruled that a crime was committed and that sufficient evidence exists that the person probably committed it. In addition, it prevents the federal government from trying a person more than once for the same crime. This amendment says you cannot be forced to testify against yourself during your own trial. This amendment guarantees that the government cannot execute or imprison you or take away your property without using fair legal methods. It also ensures that if the government has good reason to take your property, it must pay you a fair price.

The Sixth Amendment describes certain rights guaranteed by the federal government if you are arrested on a criminal charge. You must be informed of the charges against you and be tried by an impartial jury as soon as possible. In addition, you must be able to see, talk to, and answer the witnesses against you. The government must help bring witnesses in your defense to court and provide a lawyer to defend you.

The Seventh Amendment concerns civil suits. These cases involve disagreements about a person’s rights and duties. This amendment states that you can request a jury trial involving a disagreement unless it concerns an amount of

money of \$20 or less. This amendment also states that upon appeal, a higher court must review a lower court's ruling. If the higher court finds the jury made its decision without hearing enough proof of the facts, it may reverse the decision. It may also reverse the decision if the lower court did not understand the law.

The Eighth Amendment prohibits excessive bail, excessive fines, or "cruel and unusual" punishment (torture).

The Ninth Amendment states that the federal government cannot take away rights just because those rights are not listed in the Constitution.

The Tenth Amendment makes clear that the federal government has only those powers granted by the Constitution. The states retain all other power not specifically granted to the federal government by the Constitution.

Amendments 11 through 26

The 10 amendments in the Bill of Rights were all adopted at the same time. The other 16 amendments to the Constitution have been adopted at different times for various reasons. This section briefly describes the last 16 amendments:

Amendment XI concerns the suit of a state by a citizen of another state or a foreign country. The Supreme Court does not have original jurisdiction in these cases. In other words, the Supreme Court may review these cases on appeal, but another court must try them first.

Amendment XII concerns the election of the President and Vice President.

Amendment XIII prohibits slavery and "involuntary servitude."

Amendment XIV prohibits the states from taking away the privileges of citizenship from any citizen of the United States. This amendment guaranteed citizenship, due process of law, and the equal protection of the laws to former slaves. In addition, this amendment details the method of determining the number of representatives a state will have. It also concerns debts of the United States and certain qualifications for public office.

Amendment XV prohibits the withholding of the right to vote on account of "race, color, or previous condition of servitude." This amendment guaranteed former slaves the right to vote.

Amendment XVI provides for the establishment of the federal income tax.

Amendment XVII changed the method of electing senators from appointment by state legislatures to election by popular vote.

Amendment XVIII prohibited the "manufacture, sale, or transportation of intoxicating liquors." This amendment established the period of United States history known as Prohibition.

Amendment XIX grants the right to vote to all people regardless of sex; it thus gave women the right to vote.

Amendment XX concerns the terms of elected officials, the meeting of Congress, and the procedures to be followed if a President-elect should die before assuming office.

Amendment XXI repealed Amendment XVIII and ended Prohibition.

Amendment XXII limits the President to two elected terms in office.

Amendment XXIII gave electors for President and Vice President to Washington, D.C.

Amendment XXIV prohibits a poll tax (tax paid before a person is allowed to vote) in federal elections.

Amendment XXV establishes the Vice President as that person who becomes President if the President dies, resigns, or is removed from office. It also allows the President to appoint a Vice President if that office becomes vacant. Finally, it allows the Vice President to become the acting President if the President states an inability to carry out the duties of the office of President. Since this declaration must be in writing, a provision is made for an authorized person to write this declaration if the President is unable to do so. The declaration provides for the President to resume office when he or she is able.

Amendment XXVI grants all citizens 18 years of age or older the right to vote.

THE UNITED STATES GOVERNMENT

The basis of the United States government is the Constitution. The Constitution describes the duties and powers of each branch of the government. We will briefly discuss these duties and powers, but first we need to review the form of government exercised by the United States.

Earlier in this chapter, you were told a little about monarchies and the political philosophy expressed in the Declaration of Independence. To understand the form of government of the United States, you must understand two terms: *democracy* and *republic*.

DEMOCRATIC REPUBLIC

The United States is a democratic republic. A democratic republic is a form of government that combines the principles of a democracy and a republic.

A democracy is a government by the people. A democracy follows the principle of majority rule. In a “pure” democracy, all the people vote on all issues being considered by the government.

A republic is a form of government in which representatives of the people vote on the issues. Those eligible to vote elect the representatives. Republics have a President, Prime Minister, or person with a similar title as the head of state rather than a monarch.

The United States is a democratic republic because it exercises a representative form of government in which all the people elect the representatives.

THREE BRANCHES OF THE UNITED STATES GOVERNMENT

The United States government has three branches: the legislative, the judicial, and the executive. Figure 1-1 is an organizational chart of the United States government. Notice that the Constitution is at the top of the chart. This shows that the Constitution is the basis for the organization and has more power than the three branches.

Having three branches provides a system of checks and balances. Each branch has specific duties in the government, and each branch can be checked by the other two branches. In this way, no one branch can be all-powerful and control the government.

The legislative branch passes all the laws. The judicial branch can declare a law unconstitutional and set it aside. The executive branch can also veto a bill (a proposed law) and keep it from becoming law. These two systems provide a check on the legislature by the other two branches.

The judicial branch administers the laws. The President appoints all judges to the judicial branch. The legislative branch must approve judicial appointments and can impeach (remove) judges already holding office.

The executive branch enforces the laws. The judicial branch can declare the actions of the executive branch unconstitutional. The legislative branch can override the vetoes of the executive branch and must approve treaties and

appointments made by the judicial branch. The legislative branch can also impeach the President.

As you can see, the three branches of government separate the powers of the central (federal) government. With the powers given each branch, the government has a workable system of checks and balances.

We will now examine each branch of the government.

The Legislative Branch

The legislative branch of the United States government is called the Congress. The United States Congress was created by Article I of the Constitution, which states “All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and a House of Representatives.” You have already read that Congress has two houses. You have also learned that every state has the same number of senators, but the number of representatives depends on the population of the state. This two-house system along with the method of representation for each provides one of the checks and balances built into the Constitution.

The Constitution specifies the powers of Congress in Article I. It gives Congress the power to assess and collect taxes; to regulate commerce (trade), both interstate and foreign; and to coin money. It permits Congress to establish post offices, establish federal courts under the Supreme Court, declare war, and raise and maintain an army and a navy. In addition, it gives Congress the power to make laws “necessary and proper for carrying into Execution the foregoing Powers, and all other Powers vested by this Constitution in the government” This means Congress can make laws to enforce the power of the federal government.

Article I of the Constitution also forbids Congress from taking certain actions. For example, Congress cannot pass a law to make something illegal that happened before the law was passed (*ex post facto*) nor punish children for acts of their parents (bill of attainder).

Congress can propose amendments to the Constitution if two-thirds of both houses vote for the proposed amendment. The proposed amendment will become an amendment to the Constitution only if three-fourths of the state legislatures approve it. The Constitution can also be amended another way. If two-thirds of the state legislatures demand changes to the Constitution,

THE GOVERNMENT OF THE UNITED STATES

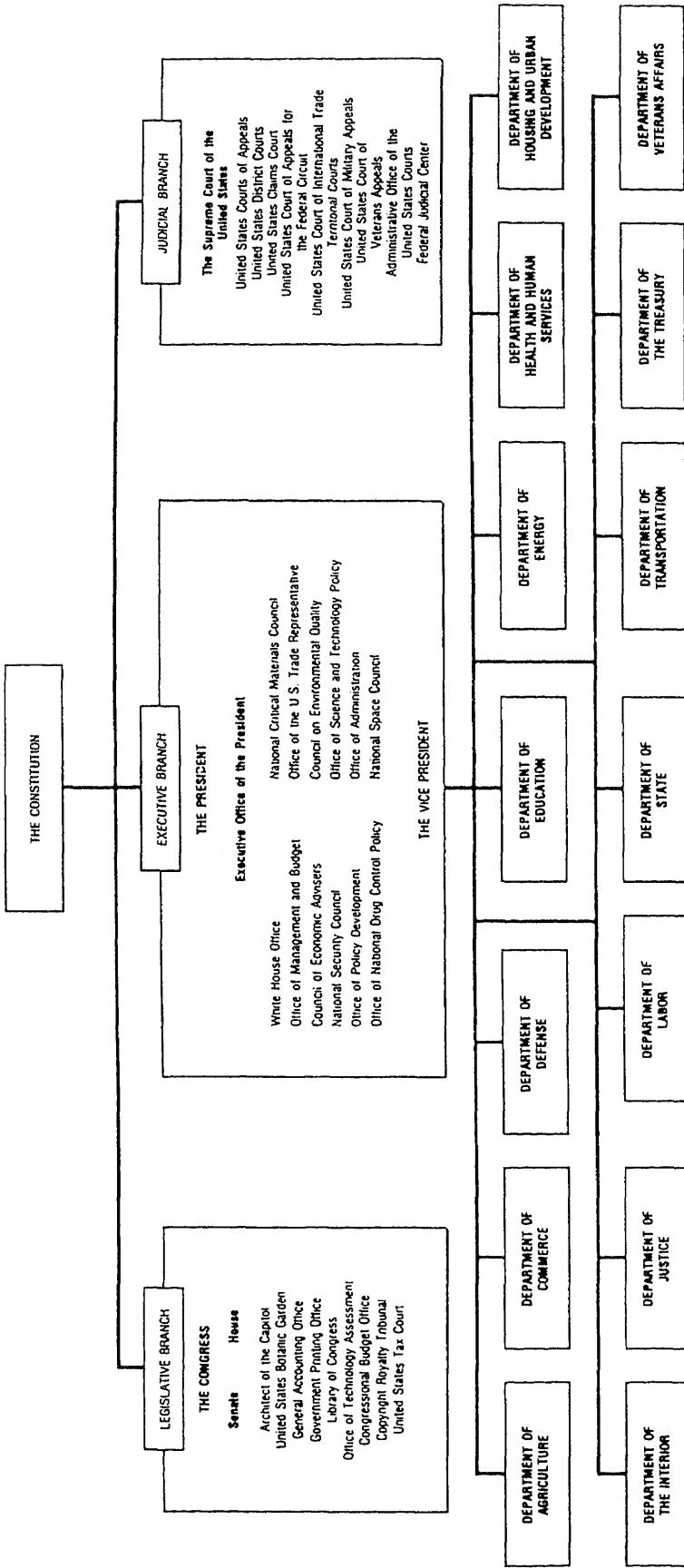


Figure 1-1.—Organizational chart of the United States government.

Congress must call a constitutional convention. This convention would refer the proposed amendments directly to the state legislatures or state constitutional conventions.

THE SENATE.—The Senate consists of 100 members, 2 senators from each state. The people of each state elect senators to serve as representatives of their state for a 6-year term. One-third of the Senate is elected every 2 years. A senator must be a resident of the state represented, must be at least 30 years old, and must have been a citizen of the United States for at least 9 years.

The Senate has some powers not granted to the House of Representatives. By a simple majority, the Senate may approve or disapprove certain appointments made by the President. The Senate must approve treaties by a two-thirds vote and must conduct the trial to impeach a President.

The Vice President of the United States presides over the Senate. In the absence of the Vice President, the President *pro tempore* (elected by the Senate) presides.

THE HOUSE OF REPRESENTATIVES.—The House of Representatives has 435 members. The population of a state determines its number of representatives, but each state has at least one. Representatives are elected for a 2-year term; all terms are for the same period. Representatives are elected by the people in the district they represent. A representative must be a resident of the state represented, must be at least 25 years old, and must have been a citizen of the United States for at least 7 years.

The House of Representatives must originate all bills to raise revenue (money). The House of Representatives has the sole power of impeachment for the President, Vice President, and all civil officers of the United States. (Impeachment is the bringing of charges; NOT the trial on those charges.)

The Speaker of the house, who is elected by the Representatives, presides over the House of Representatives. The Speaker of the House may appoint any member of the House to act in his or her absence.

HOW A BILL BECOMES A LAW.—Both the Senate and House of Representatives must pass a bill before it can become a law. In addition, either the President must sign the bill or both houses must pass the bill over the President's veto by a two-thirds majority. The

Constitution provides that the President must sign or veto a bill within 10 days (not counting Sundays) after it is presented. Otherwise, the bill becomes a law "as if he had signed it" unless Congress has adjourned.

A bill that originates in the House of Representatives must go through the following steps before it is approved:

1. The bill is assigned to a committee in the House of Representatives. If the committee passes the bill, with or without amendments, the entire House of Representatives votes on it.

2. If the House of Representatives passes the bill, it is sent to the Senate committee concerned with the subject of the bill. This committee can pass the bill as it was received from the House or recommend amendments. Then the entire Senate votes on the bill. If the bill passes, it is then sent back to the House of Representatives.

3. If the two houses of Congress do not agree on the amendments to the bill, they must compromise if the bill is to pass.

4. When both houses finally approve the bill, the Speaker of the House (or Speaker *pro tempore*) and the Vice President (or President *pro tempore*) sign it; it is then sent to the President.

5. If the President signs the bill or does not act in 10 days, the bill becomes a law. If the President vetoes the bill, it is sent back to the Congress. If, after the veto, both houses of Congress pass the bill by a two-thirds majority, the bill becomes a law.

The Judicial Branch

The judicial branch of the United States government includes the Supreme Court of the United States and the other federal courts. The basis for the judicial branch is the Constitution. It states that "the judicial Power of the United States, shall be vested in one Supreme Court, and in such interior Courts as the Congress may from time to time ordain and establish."

The President of the United States nominates all federal judges. The Senate then makes the final appointments. The Constitution appoints federal judges to serve "during good behavior." This means they are appointed for life unless they resign, voluntarily retire, or are removed from office.

Federal courts are distinct and separate from the court systems of the individual states. Federal courts administer the federal laws made by Congress. The courts of a state administer the

state laws made by the state legislature. State laws must agree with the Constitution of the United States, but otherwise the state and federal judicial systems are completely separate.

THE SUPREME COURT OF THE UNITED STATES.—The Supreme Court consists of a Chief Justice and eight Associate Justices. The President nominates the Justices with the advice of the senate; the senate must then consent to all appointments.

The term of the Court begins the first Monday in October of each year and continues as long as required, usually until about the end of June. The Court can make no ruling without a quorum; six members constitute a quorum.

The Constitution specifies the power of the Supreme Court. According to the Constitution, that power "shall extend to all Cases, in Law and Equity, arising under this Constitution, the Laws of the United States, and Treaties made, under their authority." The Supreme Court has final authority in maritime cases and in disputes between states. It also has final authority in disputes between citizens of different states and between a state and a citizen of another state or a foreign country.

The Supreme Court has ruled on various laws of the United States and the various states. If the Supreme Court declares a law unconstitutional (not in agreement with the Constitution), that law ceases to exist. In this way, the Supreme Court acts as a check and balance for the legislative branch.

LOWER FEDERAL COURTS.—The United States has other federal courts in addition to the Supreme Court. These are the courts of appeal (11 in all) and the district courts (91 in all).

The courts of appeal are intermediate appellate courts. They relieve the Supreme Court of the responsibility of considering all appeals in cases originally decided by the federal trial courts. They may review all final decisions and certain provisional decisions of district courts and review and enforce orders of many federal administrative bodies. The decisions of the courts of appeal are final except as they are subject to discretionary review or appeal in the Supreme Court.

The district courts are the trial courts of general federal jurisdiction. Each state has at least one district court, while some of the larger states have as many as four. The applicable U.S. court of appeal reviews cases from the district courts. In cases concerning injunction orders of special

three-judge district courts and certain decisions of unconstitutional acts of Congress, district courts may appeal directly to the Supreme Court.

In addition to these courts, the United States has seven special courts. These special courts deal with particular types of cases. For example, the United States Court of Military Appeals is a special court; it has final review of court-martial convictions of all the services.

The Executive Branch

The executive branch of the United States government consists of the President, Vice President, many agencies, and the executive departments. The Constitution provides for the executive branch; it states that "the executive Power shall be vested in a President of the United States of America."

The President must be a natural-born United States citizen, must be at least 35 years old, and must have been a resident in the United States for at least 14 years. The Vice President must meet the same requirements. Each is elected for a term of 4 years.

The President is the administrative head of the executive branch.

The electoral college elects the President and the Vice President. The representatives elected to the House make up the electoral college. All the other members of the executive branch are appointed.

The cabinet includes the Attorney General, as head of the Department of Justice, and the heads of the other executive departments. (Department heads have the title of secretary of the department that they head). Their jobs are to direct their departments and to advise the President on any subject requested. The President nominates all cabinet members with the advice of the Senate. The Senate must then consent to all appointments.

To date, the United States has 14 executive departments: Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Housing and Urban Development, Interior, Justice, Labor, State, Transportation, Treasury, and Veterans Affairs.

The United States Navy is part of the Department of Defense, one of the departments in the executive branch. Figure 1-2 shows the organizational relationship of the Department of the Navy to the President. Chapter 3 of this book will show you the organizational chart of the Department of the Navy.

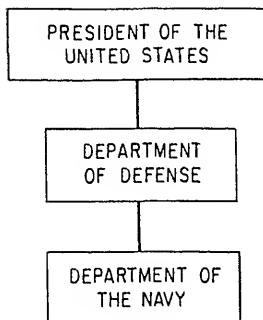


Figure 1-2.—Relationship of the United States Navy in government.

SUMMARY

As a member of the U.S. Navy, you have taken an oath (a promise) to support and defend the Constitution of the United States. The Constitution, the fundamental law of our nation, gives each citizen of our country the same basic rights. Considered a dynamic (changing and moving) document, the Constitution has been

amended on several occasions. Some of the amendments range from prohibiting slavery to limiting the President to two elected terms in office. The Constitution also provides checks and balances between the three branches of government, preventing one branch from becoming more powerful than the other two. Because the United States is a democratic republic, its people (a democracy) elect representatives (a republic) that form our government and develop laws. Of all the written Constitutions in the world, the United States Constitution is the oldest. This has been made possible by many generations of young Americans taking the oath of enlistment.

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CHAPTER 2

NAVAL HISTORY

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe the evolution of today's Navy.
2. State the peacetime and wartime roles of the U.S. Navy.
3. Define the U.S. Navy's mission and responsibilities.

Those who cannot remember the past are condemned to repeat it.

—George Santayana
American Philosopher
1863-1952

The study of history lies at the foundation of all sound military conclusions and practice.

—Alfred Thayer Mahan
Philosopher of Naval Strategy
1840-1914

The two quotations above tell of two of the reasons to study history. First, the study of history can allow you to avoid the mistakes that were made in the past. Second, by studying both the failures and successes of the past, you can plan for future success. There is another reason to study history; history is an adventure story. History is full of daring deeds, good luck and bad, heroes, cowards, and spies. The history of a country or an organization is like the biography of a person. A biography is the story of a person's life. Naval history is the story of the life of the Navy. Since this chapter is the story of the life of the United States Navy, the logical place to start is with the birth of the Navy.

THE BIRTHDAY OF THE UNITED STATES NAVY

In chapter 1 of this book you read about the birthday of the United States. You were told about the event that happened on July 4, 1776. The United States Navy had its birth on October 13, 1775. How could this be? How could the Navy be older than the United States?

Just as there was not a United States of America on July 4, 1776, there was not a United States Navy on October 13, 1775. But, the event that eventually led to the formation of the United States Navy occurred on October 13, 1775.

You may remember from chapter 1 that when the Second Continental Congress met on May 10, 1775, the colonists were already fighting with the British. Before long it became clear that, if the Colonies were to survive, a navy was necessary. So, on October 13, 1775, the Second Continental Congress authorized the purchase of two vessels. This event is considered to be the birth of the United States Navy.

THE CONTINENTAL NAVY

Navies are born out of the spirit of independence and under the threat of war; they are nurtured into maturity by the urgent demands of defense and sharpened by the encounters of conflict. This is the way it was with the first American navy.

The American Colonies were heavily dependent on the sea for their livelihood. All along the coast were harbors and shipbuilding docks that offered livelihood to many and provided income to thousands more. It is not at all surprising that when the conflict between the Americans and the British began, these were the ports at which the British first struck. These were also the ports from which the Continental Congress and the States sought to send out ships of a tiny and hastily organized naval force to harass the mightiest sea power in the world as well as its merchant fleet. A major aim was to capture enemy supply and munitions vessels.

What was life like in that first navy? From where did its ships and men come? How was it organized? And, importantly, what role did it play in building the proud tradition of the United States Navy today?

Like its beginnings, the navy of the American Revolution was fragmented into many parts, each often acting independently of the others. For instance, several naval engagements between the Americans and the British actually occurred before the Continental Congress authorized a navy.

In October 1775 Congress first authorized a naval committee and then ordered the purchase and fitting out of a number of ships. Thus, the American navy had officially begun; but some time would elapse before it would have any great effect on the mighty British navy.

SHIPS OF THE CONTINENTAL NAVY

In those days, what constituted a "warship"? During the revolutionary war and into the 19th century, naval vessels were grouped into three major classes. They were as follows:

Ships-of-the-line—The battleships of the sailing days. These ships were the largest of all sailing warships. These battleships carried 64 to over 100 guns of various sizes.

Frigates—The cruisers of the 18th century. These cruisers were next in size, usually smaller than average ships-of-the-line and usually faster. They generally carried 28 to 44 guns.

Sloops-of-war—The small sailing warships. These ships carried 10 to 20 guns.

These were the main classifications of ships in the navies of the revolutionary war days (although our Navy's ships-of-the-line did not come into existence until years later, long after the revolutionary war).

Another group of naval vessels should be mentioned here—the privateers. The privateers were commissioned by the Continental Congress and by individual states to capture enemy merchant ships as prizes of war.

Typical of the independent "fleet" of privateers was the schooner. The schooner was a small, fast, flexible, flush-deck ship that carried smoothbore cannon. With small ships like these schooners, the colonists broke the British stranglehold on main New England harbors by slipping past the Royal Navy's men-of-war and hiding in inlets. Unable to meet the British head-on, the American ships outmaneuvered them and jabbed here and there instead of standing full force and slugging it out.

Other Navy ships that convey an idea of what made up the Continental navy included the *Providence*, a 12-gun sloop; the *Lexington*, a 16-gun brig (converted from a merchantman); and the *Bonhomme Richard*, a loan from the French, an old East Indiaman. Later in this chapter, you will be told how other ships bearing some of these names made history in their own right.

THE FIRST UNITED STATES SUBMARINE

A young American experimented with a subsurface craft he hoped would help drive the British out of New York harbor and away from American shores for good. David Bushnell, a Yale medical student, had been working on a small submarine for some 4 years and finally completed it in 1775.

This first warfare submarine, named the *Turtle*, was described by Bushnell as having "some resemblance to two upper tortoise shells of equal size, joined together . . ." It was 7.5 feet deep, and under ideal conditions had a maximum speed of 3 knots. A single operator could stay down for 30 minutes.

The *Turtle* was armed with an oak casing filled with 150 pounds of explosives. This charge could

be attached to the bottom of an enemy ship where it was intended to remain until detonated by a simple clockwork mechanism.

After completing the submarine, Bushnell took it for several dives to prove its seaworthiness. Finally, by September 1776, he was ready to try it against the British in New York harbor. Sergeant Ezra Lee, a volunteer from the Connecticut militia, maneuvered the *Turtle* through the use of hand-driven screw propellers. His mission was to attach a time-fuse charge of gunpowder to the hull of HMS *Eagle*. However, the mission was aborted when the auger failed to penetrate the copper sheathing of the *Eagle*.

Bushnell made a couple of more attempts to use the *Turtle* against the British (this time in the Delaware River) by attaching mines to it and floating the mines against ships. These attempts failed, and the submarine was finally sunk by the British in New York harbor (the first recorded instance of an antisubmarine attack).

CONTINENTAL NAVY ACTIONS

The new navy that the Continental Congress had ordered to be established began to come into being in the last months of 1775. The first commander in chief, Esek Hopkins, put the first squadron of the Continental navy to sea in February 1776. Under the guns of the *Providence* and the *Wasp* and with the squadron headed by the *Alfred*, over 200 sailors and marines landed on New Providence Island in the Bahamas. John Paul Jones served as first lieutenant aboard the *Alfred*.

Hopkins' raid on New Providence Island was significant, not as a big battle, but as the first amphibious operation carried out by the American navy and marines. The squadron carried out its objectives by capturing a number of cannons and supplies from the fort.

In its continuing efforts to build a fleet, Congress authorized the construction of 13 new frigates, ranging from 24 to 32 guns, and the conversion of 6 merchant ships, ranging from 10 to 24 guns. These merchant ships included the *Hornet* and the *Alfred*. The *Alfred* had the distinction of being the U.S. Navy's first flagship and is said to be the first U.S. naval vessel on which the "Flag of Freedom" was hoisted (by John Paul Jones). All were solidly constructed ships with a number of guns. But even so, they were at a serious disadvantage because they were pitted against the established and superior British force—then the finest navy in the world.

Because of the British blockade of the American coast, it was difficult for the newly outfitted ships to reach the sea. Such was the case with the *Montgomery* and the *Congress*, ships of 28 and 24 guns, which were built at Poughkeepsie on the Hudson River. When the British occupied the port of New York, these ships were bottled up. To prevent their capture by the enemy, the U.S. government had to destroy them. Two more ships built in Philadelphia suffered a similar fate. Some of the others were also blockaded in their home ports, and one ship, the *Trumbull*, was bottled up for 3 years because it could not clear the sandbar in the Connecticut River.

The new frigates of the Continental navy had their moments, however. The *Hancock* and the *Boston*, both built in Massachusetts, set out together in mid-1777. They captured two British brigs and were then involved in separate actions with the British warships *Somerset* and *Fox*. After escaping from the *Somerset* on May 30, 1777, they met the *Fox* a week later and successfully captured it. In further actions the two Continental ships were pursued by the powerful HMS *Rainbow*. Following a 39-hour pursuit, the *Rainbow* bore down on the *Hancock* and captured it while the *Boston* escaped. The *Boston* continued to serve valiantly, in various actions, over a period of some 3 years. Its last action was in the defense of the Charleston, South Carolina, harbor where it was captured by the British in May 1780.

After its capture by the British, the *Hancock* went on to serve in the Revolution, but on the enemy's side. By a twist of fate, it was the *Hancock* (renamed the *Iris*) that captured a sister frigate, the *Trumbull*, one of the original 13 frigates built for the Continental navy. (The British crew was said to have called the American-built ship one of the finest frigates in which it had sailed.)

Among the names associated with this new made-in-America fleet of frigates is that of John Barry, who courageously commanded many ships; John Manley, who captured the *Nancy* while in Washington's Navy; and Abraham Whipple.

The skipper of the *Providence*, Whipple, was a member of a three-ship force that found itself on the edge of a huge, heavily guarded, enemy convoy during a fog off Newfoundland. Sending armed boarding parties to the merchant ships, the Americans managed to take 11 ships as prizes without being detected by the ships protecting the convoy. Cargoes and captured ships worth a million dollars were dispatched back to the States.



134.4

Figure 2-1.—John Paul Jones, father of our highest naval traditions, represents the seaman, leader, officer, and gentleman at their best.

Among the most daring commanders bringing the war to British waters was John Paul Jones (fig. 2-1). As skipper of the *Ranger*, he departed from France on April 10, 1778, for raids against the British. After capturing a number of ships, he actually landed on British soil, raiding Whitehaven, England.

One symbolic event in which the tiny new navy played a significant role is appropriate to mention here—that was the first official recognition by a foreign nation of the American “Stars and Stripes” flag. On February 14, 1778, John Paul Jones sailed into Quiberon Bay, France, in the *Ranger* and saluted the French fleet anchored there. A nine-gun salute was given in return. A gun salute given to a revolutionary government was a significant signal of that country’s recognition. France, therefore, became one of the first foreign powers to recognize the struggling government of the American Colonies. However, it was not the first. In 1776 the Dutch had given recognition to an American flag (not the Stars and Stripes) at St. Eustatius, an island in the West Indies belonging to Holland.

Some months later, in 1779, John Paul Jones took command of an old, decaying French merchant ship which he renamed the *Bonhomme Richard*, honoring Benjamin Franklin. It carried 42 relatively light guns, some in doubtful condition. Jones headed for the coast of Ireland, capturing some ships and destroying others. On September 23, 1779, Jones encountered the British warship *Serapis* (with 50 guns), and a furious battle ensued near the headland of Flamborough Head. As Jones wrote later, “Every method was practiced on both sides to gain an advantage, and rake each other; and I must confess that the enemy’s ship, being more manageable than the *Bonhomme Richard*, gained thereby several times an advantageous situation, in spite of my best endeavors to prevent it.”

The two ships, lashed together with grappling hooks so neither could escape, pounded away at one another. The *Bonhomme Richard* began taking the worst of the beating; the ship began to fill with water, and fire broke out in several places. According to one story, a gunner in a state of panic was about to strike the colors when Jones hurled his pistol at him, striking him down. The battle continued to be fought furiously with the outcome uncertain until the end. The highlight of the battle came when, after being asked if he had struck colors, Jones replied, “Struck, sir? I have not yet begun to fight!” These words inspire sailors to this day.

What turned the tide of victory for Jones was his forces aloft. Armed with muskets and dexterously climbing along the interlaced rigging of the two ships, these men kept the deck of the *Serapis* clear by shooting and dropping chains and other material down on the enemy. A member of Jones’ crew climbed to the *Serapis*’ maintop and managed to drop a hand grenade on to the gundeck, which ignited the gunpowder and scattered cartridges.

In that man-to-man sea battle, the British were finally forced to surrender. The battle of the *Bonhomme Richard* versus the *Serapis* went down as one of the great naval battles in history.

By the time the war was over, the official Continental navy had some 56 different vessels at one time or another, although it only managed to reach a peak of 27 ships, averaging 20 guns, operating at the same time. This tiny Continental navy, hurriedly assembled when the Colonies declared their independence, served not only to inflict damage on the proud ships of the Royal Navy but also to lift American morale with each of its victories. John Paul Jones, Gustavus Conyngham, and Lambert Wickes were among those who brought the battle to the British on their own waters. The news of daring raids and victorious battles at sea was acclaimed in the 13 youthful Colonies of the United States.

From the standpoint of harassment to British shipping over lengthy sea-lanes, a vital role was performed by American privateers. Vessels of all types were converted for the purpose initially, and later were specially built to do their job. They were fast and reasonably well armed. Men from all walks of life signed up in these ships. Private financing to arm and fit the vessels was needed, but that was rarely a problem; a share in a privateer could mean a fortune almost overnight.

The British navy began a system of convoys to protect its merchant shipping, but it was far from foolproof. The moment a merchantman dropped behind, it was in immediate danger because a warship couldn’t leave the convoy to protect just one ship. Then, too, convoys could protect only so many ships.

It is estimated that Congress issued more than 1,600 commissions for privateers during the revolutionary war. The privateers operated not only along the American coastlines, but also some ventured far out into the Atlantic and even into the English Channel and the Irish Sea.

According to one reasonable estimate, the British were said to have lost some 2,000 merchant ships, manned by crews totaling 16,000, to the



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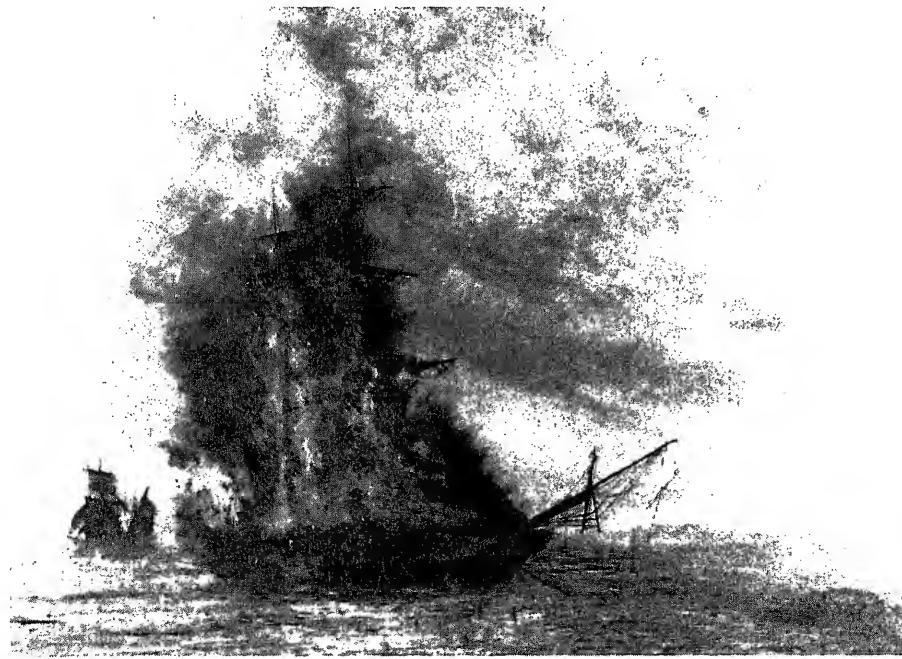
Figure 2-2.—The new and radical USS Constitution, built for speed and firepower, helped to rid the Mediterranean of the Barbary pirates.

American privateers. The merchant ships captured as prizes were manned by prize crews from the privateers and sailed to a friendly port where the ships and cargo were sold.

THE U.S. NAVY FROM 1783 TO THE CIVIL WAR

With the end of the revolutionary war, followed by the establishment of a new federal government, the infant U.S. Navy went into decline. By the end of the war in 1783, the Navy was down to five ships. These ships were disbanded shortly thereafter, with the frigate *Alliance*, the last of them, being sold in 1785.

It didn't take too long, however, before the need for a Navy was realized, since America's small merchant fleet was being molested on the high seas. In 1794 a Navy-conscious Congress authorized the construction of six frigates. They were to be of a new design—long and strong. They possessed a combination of firepower and class. One of these was the *Constitution* (fig. 2-2), which was completed in 1798. This ship was equipped with 44 guns, was known to sail at 13 1/2 knots, was 175 feet long (at its gundeck), and had a tonnage rating of 1,576 tons with a mainmast that towered 105 1/2 feet above its decks. The



3.343

Figure 2-3.—Lieutenant Stephen Decatur and 84 seamen slipped into Tripoli harbor and burned the captured American frigate Philadelphia.

Constitution is still in commission and can be seen at the Boston Navy Yard.

The *Constitution* fulfilled the thoughts and dreams of President John Adams who did so much in the role of forming the U.S. Navy. It was under Adams in 1798 that the Navy Department was established and the administrative organization of today's Navy began to take shape.

THE EARLY YEARS

Between America's two wars with Great Britain, the early U.S. Navy was involved in two other conflicts. The first was the "Quasi War" with France, 1798-1801, which was entirely a naval war. It followed worsening diplomatic relations with France, including a refusal by the French Secretary of Foreign Affairs to receive U.S. representatives unless a bribe was paid and a loan granted. The famous expression "Millions for defense, but not one cent for tribute" originated at this time. The Quasi War was the baptism of fire for the United States Navy under the new Constitution.

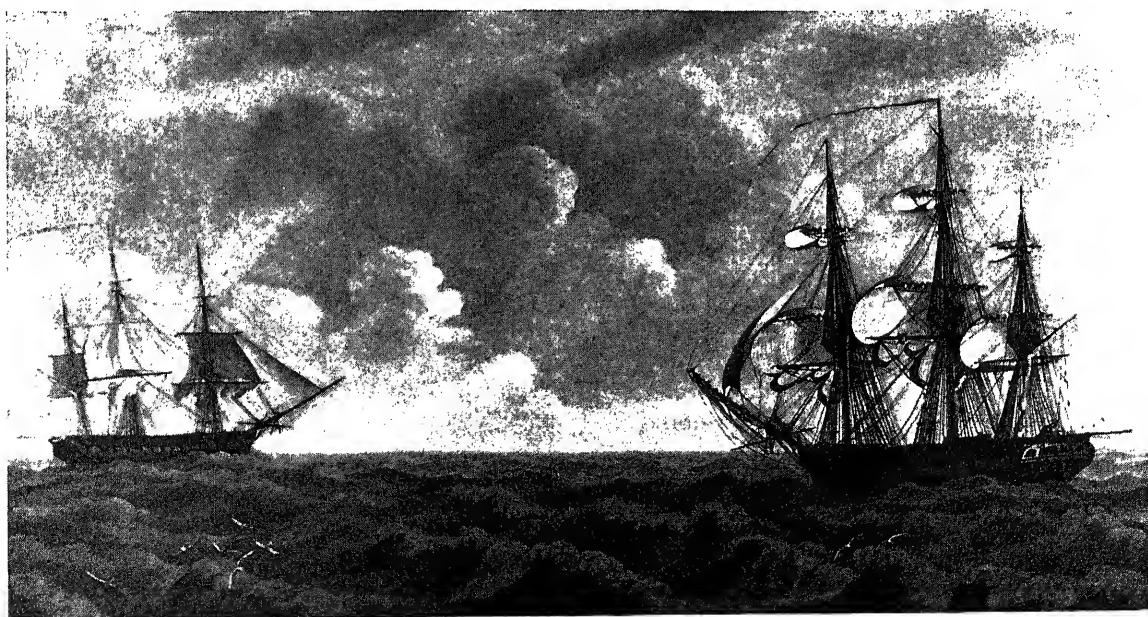
The second conflict was the war with the Barbary States. The U.S. Navy was sent to the Mediterranean to deal with the Barbary States, who were forcing other nations to pay ransom for safe passage through the Mediterranean Sea. During the campaign, Lieutenant Stephen Decatur

and 84 seamen slipped into the harbor at Tripoli on February 16, 1804, and burned the captured frigate *Philadelphia* (fig. 2-3). Not a single American sailor was lost. Britain's Admiral Lord Nelson described the raid as "one of the most bold and daring acts of the age."

THE WAR OF 1812

Brought on, in part, by British impressment of American seamen, the War of 1812 soon became an excuse for England to make its presence felt and demonstrate its power on the American continent. During this war, on August 19, 1812, Captain Isaac Hull aboard the *Constitution* defeated the British frigate *Guerriere* (fig. 2-4). The *Constitution* earned its nickname "Old Ironsides" here; but more importantly, the victory convinced Congress and President Madison that a stronger Navy was needed to win the war and protect the country.

Almost a year after Hull's important victory, another notable event occurred in naval history. On September 10, 1813, Captain Oliver Hazard Perry defeated a British squadron on Lake Erie and wrote his dispatch, "We have met the enemy and they are ours." Perry's win cut British supply lines on the Great Lakes, gained control of Lake Erie, and strengthened the American claim to the Northwest Territory.



3.344

Figure 2-4.—During the War of 1812, Captain Isaac Hull, aboard the Constitution, defeated the British frigate Guerriere.

The Tripolitan War and the War of 1812 saw bigger ships coming into the Navy. Typical was our first ship-of-the-line, the *Independence*, followed by the 74-gun *North Carolina*. The latter, authorized in 1816, was a true ancestor of the battleship and had an awesome punch.

Following the War of 1812, our Navy experienced great technological changes before the Civil War. New scientific advances, in which our Navy played an important part, foreshadowed the incredible technological revolution through which we live today.

One of these changes, which the Navy supported, was the use of steam. The Navy entered a new era, an era of the "steam-driven warship," which ultimately led our Navy to lead the way in pioneering nuclear power as a method of ship propulsion.

Harnessing the power of steam was the most important development in the surface Navy during the first half of the 19th century. Steam began to replace the not-so-reliable wind as a means of propulsion and promised to eliminate some of the hazards and delays caused when ships were blown off course or left dead in the water.

The basics of steam power had been known for centuries before being applied to ships. (The principle was known by the ancient Greeks.) However, it was Robert Fulton who demonstrated successfully its practicality in a commercial steamboat. After making a number of important modifications to James Watt's basic steam engine, Fulton had sailed his riverboat *Clermont* up the Hudson River in 1807. Fulton helped build *Demologos*, the Navy's first warship to use steam. It was originally intended for defense of the port of New York during the War of 1812. The *Demologos* was rechristened the *Fulton* in his honor and served the Navy under that name.

1815 TO THE CIVIL WAR

The Navy continued to expand its sailing fleet. From 1815 to 1840 more than 74 ships-of-the-line were built. In 1837 the Navy launched the 3,104-ton *Pennsylvania*, the largest of America's ships-of-the-line. In 1841 the Navy launched USS *Missouri* and USS *Mississippi*, our first ocean-going, steam-driven capital ships.

Through the efforts of farsighted men like Commander Matthew Calbraith Perry, USN, the Navy was becoming more steam conscious. Perry, who is referred to as the "Father of the Steam Navy," had been enthusiastic about the possibilities of steam while in charge of

construction and in command of the Navy's second steam frigate the *Fulton*. The harnessing of steam power was now hailed as the most important naval development since the cannon.

While advances with steam were slow, the Navy had been making other strides. It began making its ships with iron, instead of wooden, hulls. The year 1843 saw the launching of the Navy's first iron-hulled warship, the paddle sloop *Michigan*. This side-wheeler was 163 feet long. It displaced 685 tons and was powered by a 170-horsepower, two-cylinder, steam engine. Without using its sails, the *Michigan* was capable of making 8 knots.

The newly built steamships posed problems if engaged in battle. Their paddle wheels and steam engines could easily be damaged by enemy fire. This was remedied by changing the design of the ships so that the paddle-wheel housing was enclosed behind 5-foot-thick walls and set in an inboard channelway.

Improvement of steamships had to overcome problems one by one. Stronger engines still had to be developed; screw propellers were needed to replace the paddle wheel; and coal as a fuel had to be recognized as more efficient than wood. All of these changes didn't happen overnight; they required long and agonizing periods of trial and error. But in the 1840s new ideas were being explored and voiced by their proponents.

USS *Princeton*, the Navy's first successful propeller-driven steamship, was launched on September 5, 1843. It had a new type of propeller that eliminated the vulnerable paddle wheels and permitted the ship's engines to be placed in protected below-decks spaces.

In these years of peace, the Navy also took the first steps in Antarctic exploration. Notably, Lieutenant Charles Wilkes visited the subpolar region in January 1840 and proved conclusively that the icy land was, in fact, a continent.

War again loomed on the horizon in the 1840s. In May 1846, following a series of incidents resulting from the admission of Texas as the 28th state in the Union and the crossing of the Rio Grande by Mexican troops, the Mexican War was declared by the United States. It was largely a land war, but U.S. Navy involvement in this conflict included blockades of port cities in the Gulf and protective action by the "Mosquito Fleet" during the first large-scale amphibious operation in U.S. military history. This called for the landing of some 10,000 U.S. troops at Vera Cruz, said to be at the time one of the most powerful fortresses in the Western Hemisphere. (The Navy

itself was not equipped to carry out such an operation at that time.) Marines were also involved in this war—they marched with Scott to Mexico City, from whence came the phrase “halls of Montezuma” in the famed Marines’ song.

The Navy had a hand in an important event in diplomatic relations when Commodore Matthew C. Perry signed a treaty with Japan on March 31, 1854. That treaty opened Japan’s ports to American trade and provisioning of ships. England and Russia soon followed with their own treaties, all modeled after Perry’s.

THE U.S. NAVY FROM THE CIVIL WAR THE 20TH CENTURY

The last half of the 19th century was a time of change for the United States. Marked by two wars and the first assassination of a United States president, it was a time of rapid change. This was evident in the Navy of that time.

THE CIVIL WAR

This sad and bloody struggle between the States was the stage upon which many notable events in the U.S. Navy’s history were set.

Both Union and Confederate navies were engaged in frantic shipbuilding programs. It brought the era of ironclads into full swing.

Launched by the Union in 1862, *New Ironsides*, a powerful ironclad, had the finest armor yet and once survived 50 hits.

The Civil War also gave us those two famed ironclads of a new type, the *Merrimack*, renamed the *Virginia* by the Confederacy, and the Union’s *Monitor* (which sported a turret). The *Monitor* was ungainly, called a “cheese box on a raft,” but it and its Confederate counterpart rang up the curtain on the era of the ironclads. The battle of the ships was indecisive, with both sides claiming victory.

Also appearing on the scene were riverboats, rams, and gunboats. Probably more changes and advances were made in ship designs during the 4 years of the Civil War (1861-65) than during any period of similar duration since our Navy had its start in 1775.

The Confederate navy took the next steps forward in the development of the submarine.

CSS *Hunley* had been built with funds provided by Captain H. L. Hunley, a man blessed with imagination but lacking in practicality. The ends of this 25-foot craft were loaded with ballast

tanks that could be filled for descent but had to be hand pumped for ascent. Power was supplied by a propeller fitted to a camshaft that ran the length of the ship and was turned by as many as eight men.

Although the *Hunley* wrote another chapter in the fascinating history of submarines, it was a real jinx to the Confederates. On its first voyage it nosed into the mud and refused to surface, killing its seven crew members. It was hauled up and moored at James Island, where a passing steamer swamped it and six more crewmen were lost. It was hauled up once more and manned with another crew, but was swept over by another steamer and another three men were killed.

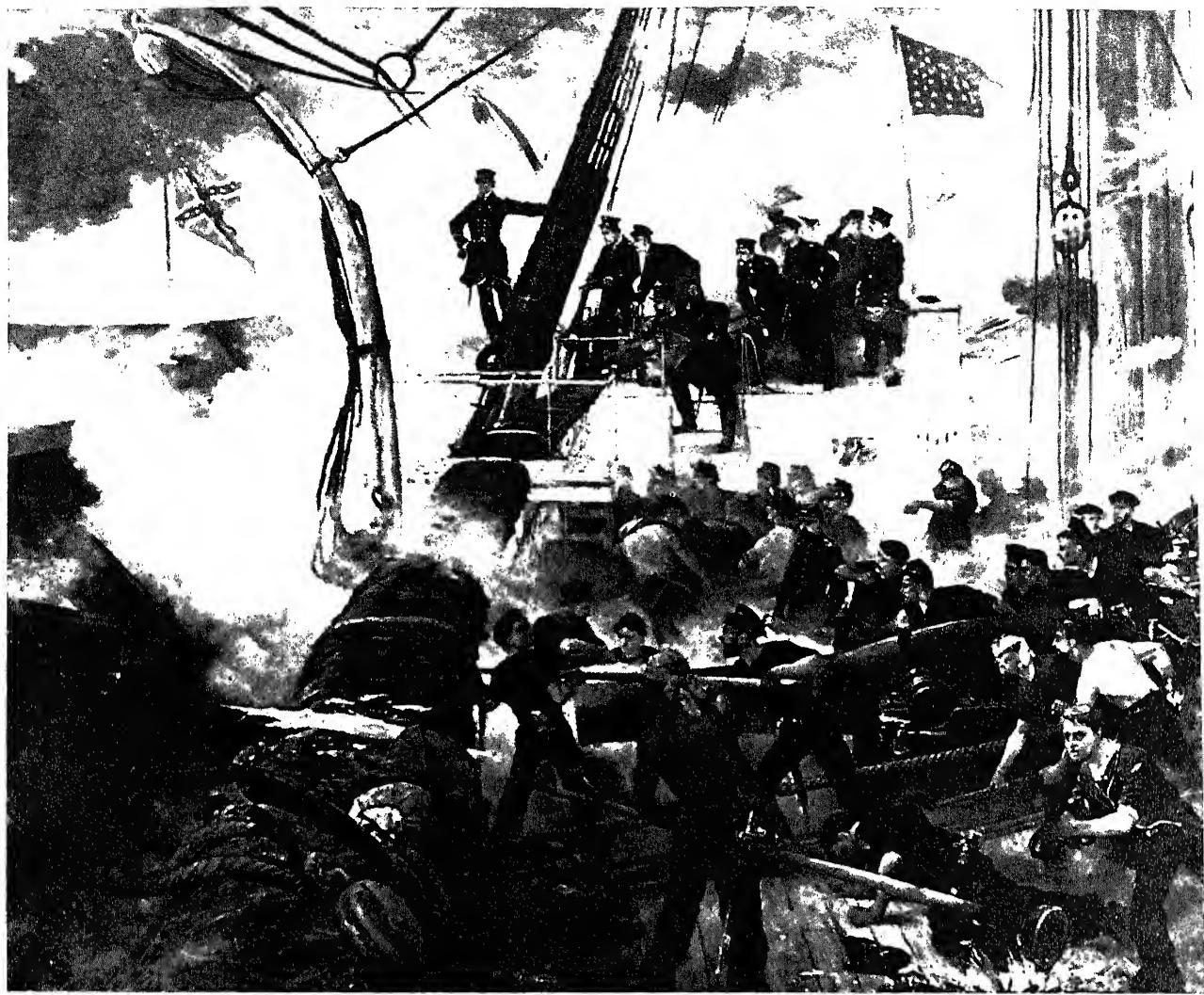
A young Confederate lieutenant, George Dixon, was convinced, however, that the boat could be of great use to the South and he so convinced his seniors. The *Hunley* was then moored off Charleston’s Sullivan Island, just a few hundred yards from its target, USS *Housatonic*. In the first true submarine attack in naval history, Dixon cast off toward the large warship. The attack was made in calm waters in the dark of night. Although the submarine was sighted by lookouts on the *Housatonic*, the ships had neither the time nor the opportunity to strike back or set sail.

The *Hunley* hit the *Housatonic* and drove its shaft deep into the ship’s hull. The heavy charge of gunpowder the submersible was carrying went off prematurely, and the *Hunley* never had a chance to escape. It and all of its crew went down.

The *Housatonic* had a similar fate; it was hit on the starboard side and went down in just 4 minutes. Another northern vessel moved to its rescue, however, and only a few of its seamen were lost. Even though he lost his life, Lieutenant Dixon had demonstrated that submarines could be useful weapons of war.

Some people associated with the Navy during the 19th century had more than a passing interest in the ocean of air above. USS *George Washington Parke Custis* of the Civil War days might be labeled as the Navy’s first “aircraft carrier.” Actually, it was a balloon boat from which observation balloons were launched over enemy installations. It was 122 feet long, and its total cost was \$150.

On the Mississippi River, the capture of Vicksburg, Mississippi, by the combined naval forces of Rear Admiral David G. Farragut, Acting Rear Admiral David D. Porter, and the commander of the Army in the West, General Ulysses S. Grant gave the North control of the



3.278

Figure 2-5.—Farragut (in rigging) at Mobile Bay.

entire river. Among other benefits, the capture of Vicksburg cut off important Confederate supplies of food and clothing coming from Louisiana, Texas, and Arkansas.

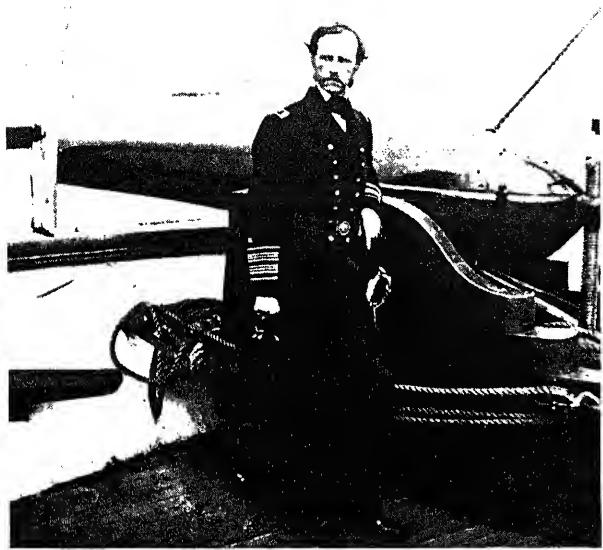
On August 5, 1864, David Farragut, the Navy's first admiral, gave his famous order "Damn the torpedoes! Full speed ahead!" (Torpedo was the name used at the time for mines.) Farragut's order won the Battle of Mobile Bay (fig. 2-5). This victory closed the South's most important port (since New Orleans had already fallen) and tightened the Union blockade.

The Civil War produced many men whose names are still famous in the Navy: Andrew Foote, whose gunboats helped General Grant capture the Mississippi River fortresses; John

Dahlgren, the father of modern naval ordnance (fig. 2-6); David D. Porter (son of the captain of the Essex), who commanded the mortar flotilla in the capture of New Orleans; and David Farragut.

POST CIVIL WAR NAVY

A man who had great influence on naval strategy was Alfred T. Mahan (fig. 2-7). One of the first instructors at the Naval War College, Mahan published, in 1890, the first of his many books and articles on sea power. One of his books, titled *The Influence of Sea Power Upon History, 1660-1783*, stressed that without control of the seas, a nation at war could not expect



134.14

Figure 2-6.—Rear Admiral Dahlgren, standing next to one of the guns he designed, was a leading pioneer in modern naval ordnance and gunnery. The Dahlgren gun was the forerunner of today's naval gun.



134.15

Figure 2-7.—A philosopher of naval strategy, Mahan researched military history and proved that the nation controlling the oceans is the nation that maintains its supremacy in war or peace.

victory. He defined sea power; showed the importance of understanding naval needs; and advocated a large, powerful Navy capable of assembling in overwhelming force to defeat the enemy's navy. His books on sea power became the "bible" of many navies, and for many years they influenced the thinking of naval strategists. Our Navy's readiness for the later war with Spain was partially a result of the influence of his works upon our leaders.

Although steam power was the major development in shipping during the first half of the 19th century, iron construction of ships was the outstanding development of the second half. However, the two developments went hand in hand. All the navies of the world recognized the advantages of steam power, but iron warships called for large steam engines to power them. The engines, in turn, called for bigger ships to accommodate them.

The shipbuilding world had turned its eyes to iron, first as framing and then as a material for the entire ship. Iron was first used in framing to reinforce ships so that they could be used to ram their opponents as well as fire on them. It was several years before an economical way to process iron strong enough for the entire construction could be found. (Wooden ships had the advantage of being cheaper to build than iron ships.)

After the Civil War the Navy had begun to experience a downward trend. A year and a half after the war, the total number of Navy ships was 236, of which just 56 were in active service.

Conditions throughout the world, however, made the country somewhat aware of the Navy's state. In 1882 and 1883, Congress once again came to the Navy's rescue by authorizing construction of the "protected cruisers" *Atlanta*, *Boston*, and *Chicago* and the dispatch boat *Dolphin*. Their "new look," despite the fact that they had both masts for sails and stacks for smoke, heralded the "new Navy"—a steel-hulled Navy and the end of the ironclads introduced only 40 years earlier. These new cruisers were in the 13- to 14-knot class. They sported new guns, new types of turrets, and armor.

The Navy once again began to regain strength. Continued changes were made as the new steel Navy took on new shapes. Still clinging to the past, the *Newark*, a 4,098-ton protected cruiser, was the last of the Navy's warships to be fitted with sails. It was launched in 1890 and commissioned the following year. Because of its

many improvements, the *Newark* has been labeled "the first modern cruiser in the U.S. Fleet."

With the development of the self-propelled torpedo, long-range torpedo boats made their debut. Among the first to join the fleet (in 1890) was the 22.5-knot *Cushing*. The Navy acquired 16 fast torpedo boats and three 185-ton boats capable of speeds of 27 knots.

The torpedo boats gave rise to another change in the shape of ships, such as the torpedo boat destroyer *Truxton*. That type of ship led to the design of our present-day destroyers. They were designed to combat torpedo boats. Later improvements resulted in destroyers themselves carrying torpedoes.

Since surface ships were driven by steam, why not submarines? Mainly because steam required air, fire, and heat, and those were in limited supply aboard a submarine. The answer today, of course, is atomic power.

The 19th century also had another first—the internal combustion engine. It had its drawbacks too; but many of its problems were overcome by a New Jersey inventor named John Holland and his compatriot, Simon Lake. The two actually favored opposite theories about the submarine. Holland thought submersion should be made by power-diving, using the force of the propeller and the angle of the bow planes. Lake said boats should descend on an even keel with slight negative buoyancy. Lake was a man more interested in underwater exploration than naval warfare. He thought a submarine could be equipped with wheels and driven along the ocean's floor, although he did not pursue that idea. Holland was more practical; his design included a workable torpedo tube, which Lake's did not.

Holland received a \$150,000 contract from the Navy for a subsurface vessel. He failed in his first attempt at building the craft, but the Navy was impressed enough to award him another contract. By 1898 he had built USS *Holland*, a cigar-shaped craft, 52 feet long and 10 feet in diameter.

The *Holland* was equipped with a gasoline engine for surface power and generators that charged batteries for underwater power. It was armed with a torpedo tube that fired an 18-inch torpedo and a bow gun recessed into the hull. A New York newspaper commented that "the offensive powers of the *Holland* are, considering the size and method of attack, far greater than any other engine of war."

The submarine's problem of running blind when submerged was corrected after Simon Lake experimented with a set of prisms and lenses he

bought from a store window display. Before that, the *Holland* had to surface to permit the crew to look out the conning tower; thus, it lost its greatest advantage, surprise. Lake and a professor from Johns Hopkins University worked out a design for the periscope. The periscope, with various improvements, remained the submarine's basic visual aid until 1958. Then underwater television was installed aboard the nuclear-powered *Nautilus* before its polar trip.

THE SPANISH-AMERICAN WAR

At the end of the 19th century, the United States and Spain became involved in diplomatic disputes about Cuban independence and wrongs concerning trade and U.S. citizens living there. On the evening of February 15, 1898, a terrific explosion suddenly tore through the battleship USS *Maine* at anchor in Cuba's Havana harbor, killing 250 American sailors. The real cause of the disaster has never been uncovered, but that event was a major reason for the start of the Spanish-American War. "Remember the Maine" became our battle cry.

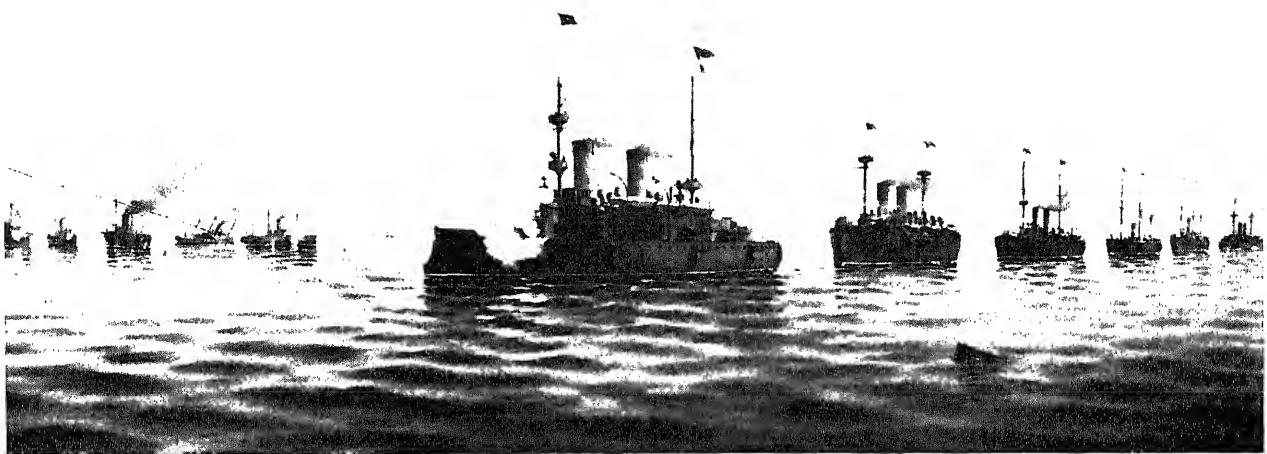
The most remembered event in this short war was Commodore George Dewey's seizure of Manila Bay in the Philippines. On May 1, 1898, he steamed into Manila Bay and ordered, "You may fire when you are ready, Gridley." Dewey's resounding victory destroyed Spain's naval power in the East and was instrumental in bringing the war to a swift conclusion.

Shortly after the Battle of Manila Bay (fig. 2-8), U.S. naval forces at Cuba cornered the Spanish Atlantic Squadron at Santiago Bay. On the morning of July 3, 1898, the Spanish squadron tried to break out of the bay and was annihilated. Cuba and Puerto Rico fell shortly afterwards. The war came to an end.

THE NAVY THROUGH WORLD WAR I

The 20th century began with a world at uneasy peace. The U.S. Navy took the time before World War I to develop some new weapons. In April 1900 the Navy accepted its first operational submarine, USS *Holland*.

The Navy continued to experiment with the development of submarines throughout the next decade. However, one of the main problems continued to be the gasoline engine—it heated up



134.131

Figure 2-8.—Battle of Manila Bay.

and gave off fumes that often overcame many of the crew.

The gasoline engine was replaced by the diesel. The first diesel engines were installed in USS *Skipjack* (SS 24) and USS *Sturgeon* (SS 25). These new engines required no complicated ignition or sparking systems, produced fewer fumes, and were cheaper to operate. The diesel engine and electric battery remained as the main propulsion systems for submarines until nuclear power emerged in the 1950s.

For a time destroyers had been used primarily to deliver torpedo attacks. With the development of the submarine, they became submarine hunters and, during the years that followed, took on numerous roles.

Construction of our first destroyer, which displaced 420 tons, began in 1899. Destroyers proved so successful that the building of these ships began on a large scale. From 1892 to 1914, the start of World War I, over 50 destroyers were built; 273 were ordered during the war.

By 1895 the heavy elements of the U.S. Fleet consisted of 15 steel cruisers, the heavy cruiser *New York*, and 3 battleships. The first two battleships were USS *Texas*, commissioned on August 15, 1895, and USS *Maine*, commissioned on September 17, 1895. Both were listed as "second-class" battleships. The third ship, USS *Indiana* (BB 1), commissioned in 1895, was our first "first-class" battleship.

The battleship was the envy of every major navy and the result of major changes that had taken place in ship design during the 19th century. Battleships carried heavy guns and a corresponding wealth of armor protection. The United States had begun building its battlewagons in the late 1880s; each succeeding class had more firepower than the one before.

In 1906 the United States launched a large battleship building program. Of these, five ships of the same class as the *New Mexico* and *Colorado* were not completed until after World War I. The many new improvements, based on lessons learned from wartime experiences, were incorporated into their design. Battleships of the same class as the *Colorado*, for example, were our first to be equipped with 16-inch guns.

As the 19th century reached its final days and the Wright brothers were working on their flying craft, the Navy was again looking upward. Theodore Roosevelt, then the Assistant Secretary of the Navy, recommended that the Secretary appoint two officers "of scientific attainments and practical ability" to examine Professor Samuel P. Langley's flying machine and report on its potential for military use.

With the Wright brothers' first flights at Kitty Hawk, North Carolina, the first journey into space began. Most people thought of flying as a stunt or a sport, but others with vision talked of such possibilities as crossing the ocean by airplane. One European inventor discussed the possibility

of transoceanic flights. He wrote in part, "flights over the ocean will be made possible by a new type of ship . . . [its] deck will be clear of all obstacles, flat and wide as possible . . . [it will] have the aspect of a landing field . . . its speed shall equal that of a cruiser . . . housing of planes will be arranged below deck and planes will have folding wings . . . and to one side there will be the service personnel workshop."

Some foresaw the potential of aircraft serving as an extension of the might and range of a naval force at sea. They were convinced the day would dawn when airplanes would no longer be used primarily for circus sideshows and crop-dusting. Instead, they believed aircraft would transport troops across oceans and be equipped to strike offensively when necessary.

One such man was Navy Captain Washington Irving Chambers, the U.S. Navy's first officer in charge of aviation. Captain Chambers' initial involvement was to answer letters from air-minded citizens and observe and report aviation developments of particular concern to the Navy. What started as a collateral duty soon was a full-time job, and Chambers became a strong supporter of those who wanted to see the sea service add an air arm.

In April 1911 the Office of Aviation in Washington, D.C., consisted of only Captain Chambers. In May he wrote requisitions for two machines made of wood, canvas, bamboo, rubber, and metal—two airplanes, the A-1 and A-2. Earlier in the year, a civilian, Eugene Ely, had successfully taken off from and later landed a biplane on a platform rigged aboard USS *Pennsylvania* (ACR 4), thus demonstrating the practical use of naval aircraft.

Shortly thereafter, the Navy accepted delivery on its first airplane, the A-1. The A-1 was first flown by Lieutenant T. G. Ellyson, the Navy's first aviator. The A-1 was followed by the A-2; naval aviation had gotten off the ground.

By October the Navy was ready to try durability flights. Lieutenants Ellyson and J. H. Towers attempted a flight from Annapolis to Fort Monroe, Virginia. After flying 112 miles in 122 minutes, the pair was forced down somewhat short of their goal by mechanical problems. Although a failure in part, the flight paved the way for successful durability tests in the following months.

Based on tremendous headway made in a few short years, Secretary of the Navy Josephus Daniels prophesied in 1914 that "the science of aerial navigation has reached that point where

aircraft must form a large part of our naval force for offensive and defensive operations." It had become evident that the airplane was no longer merely a plaything of the rich or eccentric, but a vital part of our nation's weaponry.

Meanwhile, the Navy was switching from coal to oil as fuel for its ships. USS *Nevada* (BB 36) was the first of the battleships to use oil. The day of the coal passer was on the way out.

Navy involvement in exploration continued during the first decade of the century. On April 6, 1909, Commander Robert E. Peary, accompanied by Matthew Henson, achieved the long-sought goal of reaching the North Pole.

In pre-World War I days, the Navy also carried out its role as a diplomatic arm of the government. On December 16, 1907, the Great White Fleet left Hampton Roads, Virginia, for a round-the-world cruise to show the flag. The exercise demonstrated the strength of the U.S. Navy.

Although the United States entered the first world war late, the Navy had plenty of time to make history. The first historic event came May 4, 1917, when six American destroyers commanded by Commander Joseph K. Taussig steamed into Queenstown, Ireland. They became the first U.S. Navy ships to operate in European waters during World War I. The event, billed as the "return of the *Mayflower*," was a great morale booster and aid for the Allied forces. The incident is probably best remembered by Commander Taussig's simple remark upon reporting to the British admiral in charge: "I shall be ready when refueled, sir."

Destroyers became a primary symbol of British-American cooperation during World War I. Those destroyers were the main defense against German U-boats, which were practicing unrestricted warfare and terrorizing the seas. That was one reason for our entry into the war.

The British and Americans exchanged signals, codes, and inventions in combining their destroyer forces to seek out and attack the German submarines. Destroyers served as escorts for troopships and supply convoys for the Allies, helping immeasurably to ensure their safety.

Another notable event of World War I came November 17, 1917, when the destroyers *Nicholson* and *Fanning* became the first U.S. ships to sink an enemy submarine.

When the United States entered World War I, naval aviation was still seriously limited in size. The nation had only 54 aircraft, 1 air station, and 287 personnel assigned to aviation. The nation had no armed forces or operations abroad.

In spite of its minute size, the air arm proved its value as a supporting unit to surface anti-submarine (ASW) forces. Navy pilots served with Allied units in France and England. The airplane created a new breed of hero, the ace. Nineteen-year-old Lieutenant David Ingalls, later Assistant Secretary of the Navy (Air), flew a Sopwith Camel to become the Navy's first ace.

It was in World War I that women's role in the Navy came into its own. In 1811 a Navy surgeon first recommended employing women in hospitals to care for the Navy's sick and wounded. The idea was not acted upon at that time; but in the Civil War, women nurses, although not part of the Navy, served aboard the hospital ship USS *Red Rover* in the medical department. In the war of 1898, the first trained nurses in the Navy, though not an official unit, were stationed at the Norfolk Naval Hospital to care for the injured. A decade later (in 1908), the Nurse Corps was officially born.

Josephus Daniels, then Secretary of the Navy, told how the Nurse Corps became official. As the nation readied itself for World War I, it needed Yeomen and personnel in related jobs to handle the growing demand from headquarters and naval shore stations. Daniels asked his legal advisors, "Is there any law that says a Yeoman must be a man?" The answer was no, but until that time only men had been enlisted. "Then enroll women in the Naval Reserve as Yeomen," the Secretary said. In such jobs, he added, they would offer the best "assistance that the country can provide."

Immediately after the United States entered World War I, women were enlisted on a large scale "in order to release enlisted men for active service at sea." As a result, 11,275 women were enlisted in service as Yeomen (F) by the time the armistice was signed. They handled most of the clerical work at the Navy Department, in addition to many highly important special duties.

Yeomen (F) were stationed in Guam, the Panama Canal Zone, and Hawaii, in addition to the United States and France. About 300 "Marinettes," as the feminine enlisted personnel of the Marine Corps were designated, were on duty during the war. Most of them were stationed at Marine Corps Headquarters at the Navy Department, although a number were assigned with Marine Corps recruiting units.

All Yeomen (F) were released from active duty by July 31, 1919. Secretary Daniels sent the following message to the Yeomen (F): "It is with deep gratitude for the splendid service rendered by the Yeomen (F) during our national emergency that I convey to them the sincere appreciation of the Navy Department for their patriotic cooperation."

THE NAVY FROM 1920 TO 1950

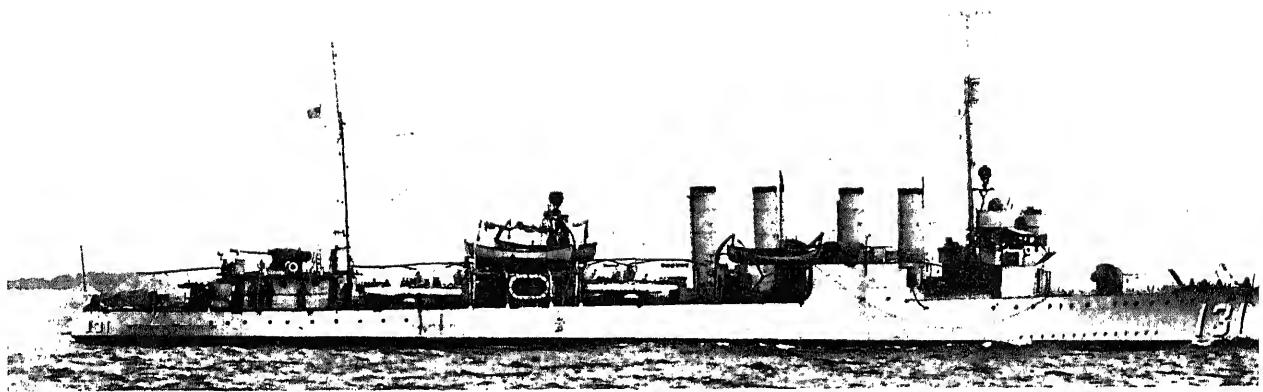
Great strides in aviation had been made during World War I, and the end of the war did not slow the pace of progress. On May 8, 1919, three Navy-Curtiss (NC) flying boats taxied into the bay of Far Rockaway, New York, and took off for Europe. Plagued by mechanical difficulties, two NCs failed to make it. The NC-4, however, piloted by Lieutenant Commander Albert C. Read, became the first airplane to fly the Atlantic. LCDR Read's message from Lisbon, Portugal, to the President read, "We are safely across the pond. The job is finished." The NC-4 is now located at the National Museum of Naval Aviation, Pensacola, Florida.

With transoceanic aircraft a reality, the Navy continued to research the use of rigid airships in its air arm. In 1923 USS *Shenandoah* was launched. In 1925 during a severe squall, the *Shenandoah* broke in half and killed 14 men. At that time some authorities questioned the safety of the airship since it was fueled with highly flammable hydrogen. In spite of some opposition, the Navy continued to test rigid airships throughout the next decade. In 1931 USS *Akron* was launched. The *Akron* crashed in 1933 during a thunderstorm, killing the entire crew.

In 1933 USS *Macon* was commissioned. Two years later the *Macon* also crashed into the sea. The Navy then abandoned research and construction of rigid airships.

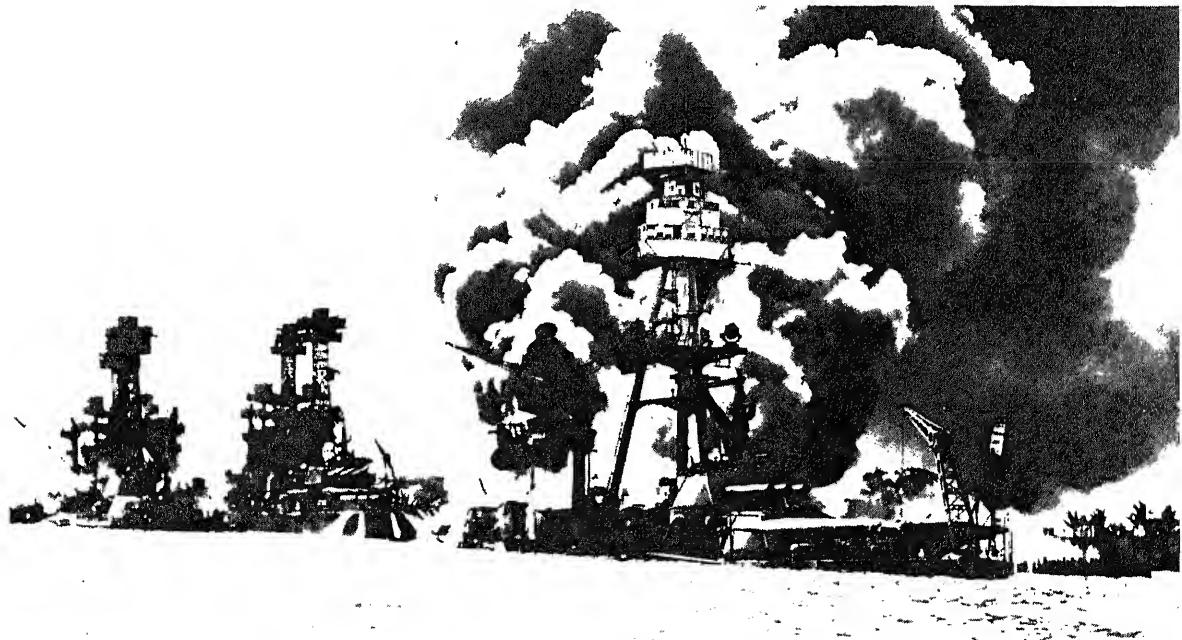
In 1934 USS *Ranger*, the first carrier designed as such from the keel up, joined the fleet. Also in the 1930s and prewar 1940s, the large carriers *Enterprise*, *Wasp*, *Hornet*, and *Yorktown* were commissioned.

Those carriers played an important role in the prewar years. They were used in exercises to test the possibility of launching air attacks from their decks. Naval aviators, during fleet maneuvers,



3.76

Figure 2-9.—Destroyer built shortly after World War I. Many old "four-pipers" saw duty in World War II.



134.1

Figure 2-10.—The day of infamy. Although the Japanese sank our battleships, our great force of warships, transports, aircraft, and other components of United States sea power brought final victory.

received excellent training in mock attacks on Pearl Harbor. Flying predawn missions from carriers, flyers theoretically destroyed the U.S. Fleet and its aircraft there. Fleet commanders were impressed by the flexibility of the air arm, but no one else seemed to pay much attention to the exercises.

In November 1929 a Ford trimotor aircraft, named the *Floyd Bennett*, carried Commander Richard E. Byrd and his crew on the first flight over the South Pole. Commander Byrd thereby became the first man to fly over both poles.

Between the two world wars, the United States built the Navy's destroyer fleet to 184 ships. Destroyers also became prime factors in America's policy to turn over older destroyers (fig. 2-9) to Britain after the British entered the war against Germany. When the Japanese attacked Pearl Harbor, a destroyer, USS *Ward* (DD 139), was among the first American forces to fire against the enemy, sinking a Japanese midget submarine. Destroyers went on to distinguish themselves in fighting enemy submarines both in the Atlantic and Pacific theaters.

WORLD WAR II

On the morning of December 7, 1941, the "Rising Sun" came out of the west when the Japanese pounced on Pearl Harbor. On that morning, over 15 U.S. Navy ships were sunk or damaged, including all 8 battleships of the Pacific Fleet (fig. 2-10). Some 3,400 Navy and Marine Corps personnel were killed or wounded. The United States declared war on Japan the next day.

The Japanese attack on the island base was the first in history conducted solely from aircraft carriers. The attack proved beyond a doubt that aircraft had become an essential part of naval armament.

Fortunately, no United States carriers were lost during the attack on Pearl Harbor. The *Yorktown*, *Wasp*, and *Ranger* were in the Atlantic, and the *Saratoga* was in San Diego. The *Lexington* was about 425 miles south of Midway, and the *Enterprise* was 200 miles west of the Pearl Harbor.

The Japanese Imperial Navy had captured island after island in the South Pacific as it advanced toward Australia. The U.S. Navy's air arm finally stopped that advance in early May 1942, which set the scene for the turning point of the war in the Pacific.

At Coral Sea the two fleets never saw each other—the battle was fought entirely with aircraft launched from carriers. The *Lexington* and *Yorktown*, jointly under the command of Admiral F. J. Fletcher, launched 93 attack planes against the carriers *Shoho*, *Shokaku*, and *Zuikaku*. The latter two were both veterans of Pearl Harbor. Within 5 minutes, the *Shoho* was hit with 10 heavy bombs and 15 torpedoes. The *Lexington*'s radio crackled with the voice of Lieutenant Commander Dixon of the air group, "Scratch one flattop. Dixon to carrier, scratch one flattop!" The other two enemy carriers were so badly damaged that their services to the Japanese fleet were lost for weeks.

The United States suffered the loss of an oiler, an escort, and the *Lexington*. Even though American losses were heavy in tonnage and men, Australia had been saved from invasion.

The turning point of the war came the next month at the Battle of Midway. The Japanese had concentrated on the central Pacific with the intention of occupying Midway Island. The four-carrier Japanese task force was met by a U.S. carrier force. The U.S. force included the carriers *Yorktown*, *Hornet*, and *Enterprise* plus Navy, Marine, and Army air units from Midway.

Dive bombers proved to be the downfall of the Japanese carrier force. When the battle ended, the Japanese had lost 4 carriers, 1 heavy cruiser, and 258 aircraft. The United States had lost 132 aircraft, the destroyer *Hamman* (DD 412), and the aircraft carrier *Yorktown* (CV 5). In April 1943 another *Yorktown* was commissioned; it continued in the proud tradition established by its predecessor.

In November 1942 the Navy fought the Battle of Guadalcanal. After 3 days of bitter fighting, the Japanese naval forces retreated and U.S. Marines were able to secure the island. With the fall of Guadalcanal, the southern Solomons came under Allied control and Australia was in less danger of attack.



3.279

Figure 2-11.—Part of Task Force 58 at anchor in the Marshall Islands, April 1944. Such forces led the way to victory over Japan.

On June 19, 1944, U.S. Task Force 58 (fig. 2-11) caught the combined Japanese fleet steaming out of Tawi Tawi in the southern Philippines. The Battle of the Philippine Sea ended with the Japanese carrier forces short of ships, planes, gas, and pilots. Unable to replace these, the Imperial Navy was never able to recover from losses, although many desperate battles were to follow.

The final blow to the Japanese navy came October 23, 1944. In a last-chance effort to salvage the Philippines, the Japanese sent a naval force to Leyte Gulf to attack the U.S. Fleet. Their plan backfired and the operation was a complete failure—the deciding catastrophe for their navy. The loss of the Philippines severed their empire, and the homeland was cut off from its main source of supply from the south. With the losses at Okinawa and Iwo Jima, the war in the Pacific was approaching its final days.

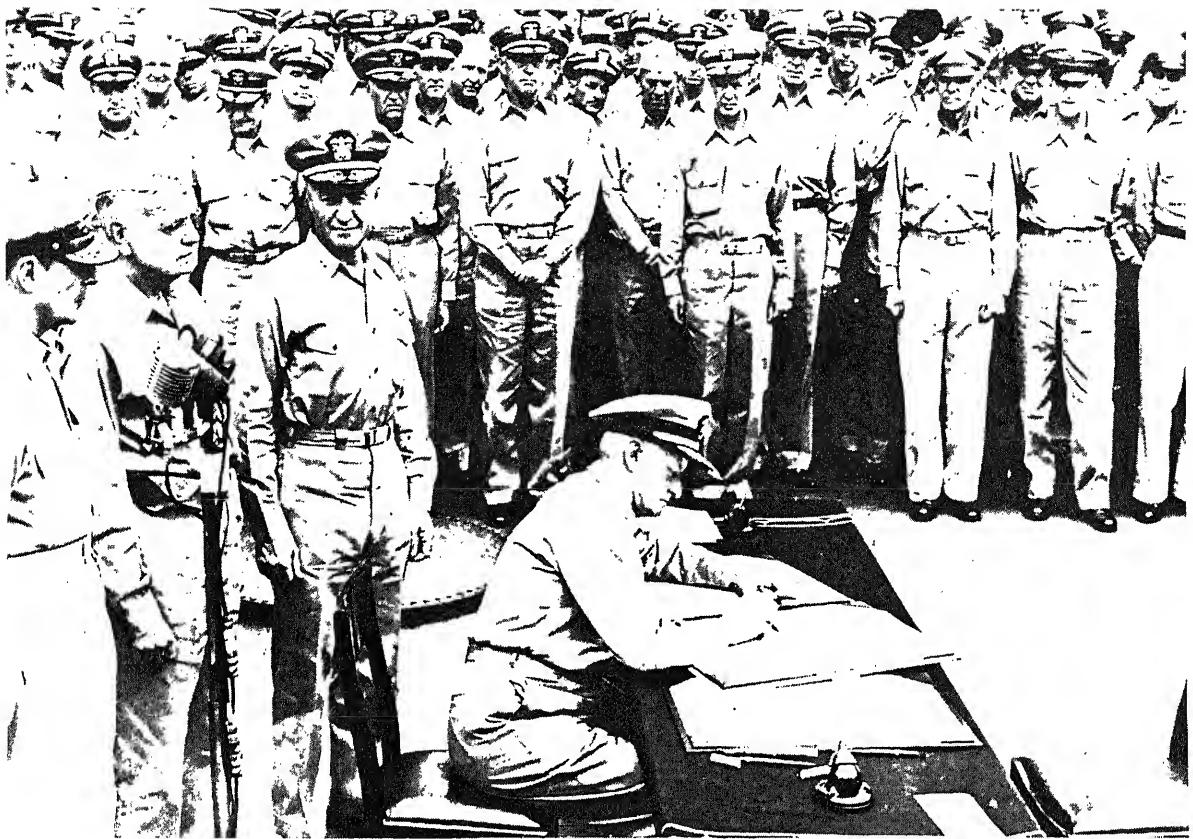
Earlier, on the Atlantic side of World War II, the U.S. Navy had been fighting off U-boats in the long, running Battle of the Atlantic, protecting convoys bound for Europe. Small escort carriers dubbed “jeeps” were operating with convoys; their aircraft were successfully attacking German submarines as they surfaced to recharge their batteries. Limited range of land-based airplanes was no longer a significant factor; distance offered no sanctuary for the U-boat. Eventually,

the German submarine menace was contained, and England and Europe got vital supplies and troops.

The Navy's most notable Atlantic action may have been its part in the June 6, 1944, invasion of Normandy—the largest amphibious operation in history. The greatest armada ever assembled carried out minesweeping, shore-bombardment, and amphibious operations and transported supplies and troops. Those operations enabled the Allies to complete D-Day landings successfully and eventually push on to Germany.

The pattern of widespread oceanic war brought about the building of a fleet unlike any in history, consisting of a swift striking force. It had the advantages of speed, mobility, and surprise, yet possessed the firepower and protective armor to stand and slug it out with enemy forces. Such a fleet was made up of ships with names synonymous with heroism, such as the *Tarawa*, *Missouri* (fig. 2-12), *Tucson*, *Higbee*, and *O'Bannon*.

During the 5-year period ending in late 1944, 9 million tons of vessels had been added to the U.S. Navy. One of the most novel developments added was the large assortment of landing ships that began appearing in the early stages of the war.



134.3

Figure 2-12.—V-J Day aboard USS Missouri. Fleet Admiral Nimitz signs the Japanese surrender document on 2 September 1945.

Possibly the most versatile of the many new types of ships built during World War II were the destroyer escorts, now called frigates. Other types built during that time included attack cargo ships, transports, barracks ships, net tenders, repair ships, radar pickets, minelayers, and minesweepers. Those ships, as well as many other types of ships too numerous to mention, changed the shape of the U.S. Navy almost overnight.

When the Japanese attacked Pearl Harbor, 111 American submarines were in commission, 60 in the Atlantic Fleet and 51 in the Pacific. After the invasion of North Africa, however, U.S. efforts were concentrated in the Pacific, leaving submarine operations in the Atlantic to U.S. Allies. Therefore, the Pacific became the hunting grounds for American submarine forces.

The number of American submarines during the war peaked at 247. During the war, the United States lost 52 of these boats along with 3,505 submariners.

The number of vessels sunk by U.S. submarines played a major part in the American victory in World War II. American submarines sank 1,750 Japanese merchant ships and more than 200 combatants; those vessels represented 55 percent of the total Japanese tonnage sunk in the war. For an island nation such as Japan, those figures represented a fatal impact.

Radar and sonar came into full use during World War II. The English used them initially to combat German U-boats, but they were also incorporated into the submarine as an attack aid. Sonar has become the most important of the submarine's senses. Hydrophones listen for sounds from other ships and the echoes of sound waves transmitted from the submarine itself.

Twenty-one years after the Yeomanette era, women were needed to fill an acute shortage of personnel caused by rapid expansion of the Navy for World War II. On July 30, 1942, Congress authorized establishment of the Women's Reserve, with an estimated goal of 10,000 enlisted women and 1,000 officers.

However, this new organization had certain congressional limitations. Women could not serve at sea or outside the continental United States and could not exercise military command over men. They could not go beyond lieutenant commander on the promotion ladder. On August 4, 1942, Mildred Helen McAfee was sworn in as Lieutenant Commander, U.S. Naval Reserve, to become Commander of Women's Reserve.

A boot camp for women volunteers was established at Hunter College in New York City—it was promptly dubbed USS Hunter. Since basic training lasted from 6 to 8 weeks, every other week some 1,680 women seamen had to be housed, fed, and uniformed. (The housing was provided in 17 apartment buildings near the college taken over by the Navy.)

At about the same time, three other schools were commissioned in the Middle West to train enlisted women as Yeomen, Storekeepers, and Radiomen. In July 1943, the Navy Japanese Language School in Boulder, Colorado, opened to women.

Navy women came to work the same hours as Navy men, standing both day and night watches. They stayed in uniform at all times except in the barracks or when engaged in active sports. They were called upon to meet the same standards of neatness and good behavior as those required of men in uniform.

In short, women were fitted into the Navy as an integral part of the service. They slipped into the same spot in the chain of command as the men they replaced and performed the same duties. This system gave Navy women—or WAVES, as they were popularly called—the same status, responsibilities, and restrictions as men.

The first Reserve classification for women officers was W-V(S), meaning Woman-Volunteer (Specialist). Professor Elizabeth Reynard (later LT Reynard) came up with the term *Women Appointed for Voluntary Emergency Service* (WAVES). That term was later changed to *Women Accepted for Voluntary Emergency Service*. The initials WR and the term *Women's Reserve* were official, and some women preferred these terms to the equally official, but less formal, term *WAVES*.

As the Women's Reserve observed its second anniversary, July 30, 1944, it could look back upon a brief but glowing record of expansion and achievement. During its 2 years of existence, its members had freed enough officers and men to

crew a fleet of 10 battleships, 10 aircraft carriers, 28 cruisers, and 50 destroyers.

During World War II, WAVES were directly eligible for 34 different ratings. They performed nearly every conceivable type of duty at 500 naval shore establishments.

THE POSTWAR YEARS

Since the WAVES had proved their worth during the war, the Navy was reluctant to give up its programs for women. After the war a number of Navy women were retained in service. However, by the fourth anniversary of the program, only 9,800 remained on active duty.

The Women's Armed Services Integration Act, Public Law 625, was passed by the Senate and the House and signed by the President. It became law June 12, 1948, marking another step forward.

That was perhaps the most significant milestone to date in the history of women in the Navy. That act gave women full partnership on the Navy team and abolished the Women's Reserve. For the first time, women became a part of the Regular Navy.

At the same time the Regular Navy opened to women, the Reserves established a program for women volunteers. The new laws authorized the transfer of all members to appropriate components of the permanent Naval Reserve.

Following World War II, the U.S. Navy turned its attention once again to the exploration of Antarctica. In 1946 an important event called Operation Highjump got underway. Seaplanes flying from the open sea and the airstrip at Little America photographed the interior and coastline of the "white continent."

Unlike the placid years following World War I, the postwar period from 1945 to 1950 was a busy one. The United States emerged from the war with an awareness that it could afford no major cutbacks in military strength, as had been done at the end of World War I. The United States had become a nation committed to trade with and protection of other countries. The only way that responsibility could be discharged was by the maintenance of a strong and ready Navy.

Naval researchers continued to develop new ships—specialized ships—and new planes capable of providing swift aid to Allies in a world of uneasy peace. All naval aircraft, featuring the most advanced radar and sonar systems, were redistributed into patrol, attack, and fighter squadrons.

Jet aircraft were perfected during the postwar years. In June 1948 a squadron of FH-1 Phantoms qualified for carrier operations aboard USS *Saipan* (CVL-48). Carrier flight decks were redesigned to launch and recover jets.

During this time the Navy was speeding development of the most revolutionary advancement in the history of submarines— nuclear power. Early in World War II, as part of the Navy's initial research on the atom, proposals were made to develop atomic power for use afloat. However, most of that work was diverted to development of the atomic bomb.

Nuclear power was the long-awaited propulsion source for the submarine. It turned the submersible surface ship into a true submarine, capable of almost indefinite operation. It was no longer bound to the earth's atmosphere.

In September 1947 Captain H. G. Rickover informally requested the first study of the application of a high-pressure, water-cooled reactor for a submarine. Personnel of the Daniels Pile Division at Oak Ridge, Tennessee, undertook that study.

In January 1948 the Department of Defense requested that the Atomic Energy Commission undertake the design, development, and construction of a nuclear reactor that would propel a naval submarine. In December 1948 the Commission contracted the Westinghouse Electric Corporation to develop design, construct, operate, and test a prototype nuclear propulsion plant. The outcome of those efforts was USS *Nautilus*.

THE NAVY FROM 1950 TO 1990

As the second half of the 20th century arrived, the United States had been at peace for 5 years and the Navy was involved in many scientific pursuits. However, scientific and exploratory pursuits were interrupted by the outbreak of the Korean War.

THE KOREAN WAR

Supported by the United Nations, the United States agreed to give the Republic of Korea air and naval assistance. Three days after that decision, June 29, 1950, the cruiser USS *Juneau* and the destroyer USS *Dehaven* fired the first bombardment of the war.

When North Korea attacked south of the 38th parallel, the Navy was called upon for close air support to knock out bridges and block enemy

supply routes. Navy jets flew from carriers for the first time in a war situation. Unlike World War II, the enemy didn't have the capability to strike our carriers, so pilots launched their Corsairs and Banshees on the first sustained ground-support missions in history.

The helicopter also came of age during the Korean War. First studied and developed in 1942 when the Navy received four Sikorskys, the choppers were spotters for artillery. During the war they flew emergency supply runs and took part in direct combat duties. Later, the helo was used as a cargo transport between ships during underway replenishment, search and rescue missions, and ASW exercises. Korea was the testing ground for the helicopter and many other innovations our forces currently use.

On September 15, 1950, under massive shore bombardment by U.S. Navy ships, the amphibious landings at Inchon began. The successful operation cut enemy communications, split enemy forces, and dissolved enemy resistance in that area. The shelling of supply roads far inland by the battleship *Missouri* demonstrated a new tactical concept. That concept was the Navy's ability to intervene successfully in a ground operation far ashore.

The Korean War lasted until July 1953. Other events were happening in the Navy while the war was being waged. For example, a program was established giving outstanding enlisted women the opportunity to receive commissions in the Regular Navy.

KOREA TO VIETNAM

The 1950s was a time of change. By the end of the decade, most operational aircraft in the attack and fighter arsenals of the sea service were jets. More and more angled-deck carriers were authorized, and new deck-edge elevators allowed simultaneous takeoffs and landings.

The *Nautilus*, the first nuclear submarine, was first put to sea on January 17, 1955. Under Commander Eugene P. Wilkinson, the *Nautilus* transmitted the historic signal, "Underway on nuclear power."

On its shakedown cruise in May 1955, the *Nautilus* steamed submerged from New London, Connecticut, to San Juan, Puerto Rico. It traveled over 1,300 miles in 84 hours—a distance 10 times greater than the record for continuously submerged travel by any previous submarine.

After more than 2 years of operation and evaluation, the *Nautilus* was refueled in April 1957. On its first nuclear core, it steamed a total of 62,562 miles; it made more than half of that cruise while totally submerged. A conventionally powered submarine the size of the *Nautilus* would have required over 2 million gallons of fuel oil to duplicate that feat. A train of tank cars over a mile and a half long would have been necessary to transport that amount of fuel.

On August 12, 1958, the *Nautilus* completed a history-making transpolar voyage from Pearl Harbor, Hawaii, to Portland, England. After diving under the ice near Point Barrow, Alaska, on August 1, 1958, it became the first submarine to reach the geographic North Pole.

Nuclear submarines produced after the *Nautilus* continued to pioneer new areas of submarine operations. USS *Seawolf*, the Navy's second nuclear-powered submarine, operated as an active unit of the Atlantic Fleet. On October 6, 1958, it completed a record-breaking 60-day run, traveling a distance of 13,761 miles submerged.

While the *Nautilus* was still undergoing operational testing, the Navy began development of a ballistic missile of intermediate range. Brought from conception to initial operation in 5 years' time, the Polaris fleet ballistic missile (FBM) weapons system was mated with nuclear propulsion. That development produced a virtually invulnerable missile-firing submarine. Today the missile-firing submarine constitutes one of the highest priority elements of the United States' deterrent capability—that is, a deterrent to nuclear conflict.

Each Polaris submarine could launch 16 two-stage ballistic missiles powered by solid-fuel rocket motors, containing a self-contained inertial guidance system. The Polaris provided a combined explosive power greater than the total of all the bombs dropped by all aircraft during World War II. Nuclear propulsion enabled these Polaris submarines to remain on patrol for extended periods, hidden beneath the surface of the sea, ready to launch their missiles.

On station, a Polaris submarine maintained complete radio silence, receiving radio messages while submerged, but not transmitting to prevent giving away its location. Each ship had two complete crews, the Blue and the Gold, of about 130 people each. The Polaris operated on a system that reflected a major change in the Navy's traditional ship-manning methods. The crews alternated on approximately 3-month-long

deployments, providing maximum on-station time for the submarine. Its endurance was limited only by the limitations of its personnel.

Submarines were followed by the world's first nuclear-powered surface warships. They were the guided-missile cruiser USS *Bainbridge*, launched April 15, 1961; the guided-missile cruiser USS *Long Beach*, commissioned September 9, 1961; and the carrier USS *Enterprise*, commissioned November 25, 1961. On October 3, 1964, those three ships ended Operation Sea Orbit—a 64-day-long, around-the-world, unreplenished cruise.

In another area—space exploration—the *Vanguard*, a 3 1/2-pound payload, was developed by the Naval Research Laboratory. On March 17, 1958, it was placed into orbit to test a system designed to launch earth satellites during the international geophysical year (IGY). Now the oldest man-made satellite in orbit, it is expected to remain aloft for 2,000 years.

Naval officers also participated in space exploration. On May 5, 1961, Commander Alan B. Shepard, Jr., made America's first suborbital flight. The 15-minute shot in *Freedom 7* went 116.5 miles into space.

VIETNAM

Although the United States was at peace following the Korean War, events were building that would plunge the country into another conflict. Since 1959 the French had been involved in fighting in a country most Americans had never heard of—Vietnam.

Vietnam became known to Americans in 1965. That is the year the United States entered the Vietnam War. That war, which caused conflict at home as well as on the battlefield, lasted until January 1973.

The Navy's operations in support of South Vietnam's struggle against communist military aggression consisted mainly of gunfire support and carrier aircraft operations. These operations included coastal interdiction patrols against North Vietnamese ships moving troops and supplies to the south. They also included riverine operations by a swarm of various types of patrol craft in the maze of waterways in South Vietnam's delta area. (By early 1972 all boats and the responsibility for delta operations had been turned over to the South Vietnamese Navy.) Naval construction battalions (Seabees) built several military bases and constructed water and sanitary facilities for local communities. Often, as in World War II, they engaged in fighting as they worked. Navy medical

personnel served in the field with Marine Corps and Seabee units, as they did in World War II and in the Korean War. They often performed their duties under fire and often sacrificed themselves to protect their charges from further harm.

As in previous wars, U.S. Navy service and amphibious forces transported over 90 percent of the personnel and supplies used in support of that conflict.

During the Vietnam era five new attack carriers joined the fleet, including the world's first nuclear-powered carrier, *Enterprise* (CVN 65).

Vietnam was a different kind of war, a war in which the Navy's role was ever changing. The Navy used both new and old aircraft—OV-10 Broncos, propeller-driven Skyraiders, attack planes like A-4 Skyhawks and A-7 Corsairs, and fighter planes like F-8 Crusaders. It used various support aircraft for ASW, early warning, and advance communications links.

Even during the Vietnam War, the Navy was involved in exploration and development. Former Navy pilot Neil Armstrong became the first man to set foot on the moon on July 20, 1969. On November 14, 1969, the all-Navy *Apollo 12* crew lifted off from the Kennedy Space Center on the second lunar expedition. The crew consisted of Commanders Charles Conrad and Richard Gordon and Lieutenant Commander Alan Bean. Another all-Navy crew (Captain Charles Conrad, Jr., and Commanders Joseph P. Kerwin and Paul J. Wietz) splashed down on the first Skylab mission on June 22, 1973. The crew set numerous records and accomplished virtually all of its objectives.

The Navy stands tall in the first 10 years of manned space exploration. Records show that five of the six men to walk on the surface of the moon during that time had formerly been trained as naval aviators.

In the past several years, Navy scientific endeavors have occurred in yet another element—under the sea. The *Alvin*, the Navy's first deep-diving vehicle, was successfully tested at 6,000-foot depths on July 20, 1965. The next month, 10 aquanauts, including astronaut Commander M. Scott Carpenter, entered the Sealab II capsule, 205 feet below the surface of the sea off the coast of La Jolla, California. Carpenter remained underwater for 30 days in a successful experiment of submerged living and working conditions. On January 25, 1969, the first nuclear-powered, deep-submergence research and ocean-engineering vehicle, NR-1, was launched.

That five-man vessel can operate for weeks at a time at great depths.

In early 1965 came the announcement of the proposal to develop a new missile for the fleet ballistic missile system—the Poseidon. The growth potential of the ballistic missile submarine launching system has enabled the Poseidon to fit into the same 16-missile tubes that carried the Polaris. Like the Polaris A-3, it is able to reach any spot on earth from its nuclear-powered hiding place. Its increased accuracy, greater payload, and improved ability to penetrate enemy defenses make the Poseidon more effective than the Polaris.

On July 19, 1974, construction of the new Trident undersea nuclear weapons system commenced. The Trident system consists of three principal elements: a nuclear-powered fleet ballistic missile submarine (SSBN), a strategic weapons system (the missile), and an integrated logistics support system. The first Trident submarine was USS *Ohio* (SSBN-726), a nuclear-powered fleet ballistic missile submarine. USS *Ohio* was delivered to the Navy in 1981. Since then, the Navy has accepted delivery of 10 more Trident submarines.

U.S. Navy ships continued to change with even greater momentum, ushering in another new era—that of nuclear propulsion, jet power, rockets, and guided missiles. Along with those types of ships which have proved themselves in the past have emerged ship categories such as guided-missile cruisers, tactical command ships, and helicopter flattops. The era of the 50s, 60s, 70s, 80s, and on into the 90s has seen the emergence of the nuclear Navy.

The heart of today's nuclear fleet is a highly complicated unit known as the nuclear reactor, which offers the following advantages:

- Almost unlimited steaming endurance at high speed. Nuclear ships have increased flexibility; an ability to obtain ammunition, aviation fuel, and other supplies from remote places in a minimum amount of time; and an attack ability in a much greater area.
- Reduced vulnerability. Nuclear ships need not remain exposed as long as nonnuclear vessels during replenishment. They can maneuver to avoid attack.
- Reduced dependence on logistic support. Nuclear ships require fewer mobile support forces.

- Greater attack effectiveness. Nuclear ships can remain in battle areas for a greater length of time and have a greater ability to exploit weather conditions to their advantage.
- Elimination of huge funnels. That provides more room for such items as a big, powerful radar.
- Power available upon command. Nuclear reactors eliminate the need to order “more boilers on the line” a half hour before full power is desired. Heat is produced in the nuclear reactor; in turn, steam and power is produced with little delay. Reduction from full power to one-third or stop is equally responsive.
- Reduced maintenance. The absence of corrosive stack gases cuts down on the wear and tear of the ships—and a lot of at-sea and in-port repairs.

The Navy has been advancing in other areas of the surface fleet as well. An example is the new amphibious assault ships (LHAs). The LHAs are the largest and fastest amphibious ships in the Navy inventory and offer the greatest operational versatility in the history of amphibious warfare.

The size of the LHAs alone is impressive. The first of the LHAs, the *Tarawa*, is 820 feet long and 106 feet wide. The high point of its mast is 221 feet above the keel, and it has a full displacement of 39,300 tons. It can carry a large landing force with all its equipment and supplies, landing them either by helo or amphibious craft or both. The primary advantage of these general-purpose assault ships is tactical integrity—getting a balanced force to the same point at the same time.

Spruance-class ships consist of the Navy's prime ASW destroyers. They are fitted with our most powerful sonar, helicopters, our best ASW weapons, and the Harpoon surface-to-surface missile system.

The most recent additions to the surface fleet are the Ticonderoga-class cruisers and the Arleigh Burke-class destroyers. Both are powered by gas turbines and are capable of high-speed transits. They are also outfitted with the Navy's new Aegis weapons system. That system has the capability to track and engage multiple targets, using a complex system of radars, missiles, guns, torpedoes, and self-defense systems. These capabilities make these cruisers and destroyers the most survivable units of today's surface fleet.

THE PERSIAN GULF AND BEYOND

As with other wars, conflicts, or areas of military aggression, U.S. naval forces operate in the hostile area of the Persian Gulf. U.S. naval forces have been present in this vital oil-rich region for many years.

The events leading to an increased number of U.S. naval units in the Persian Gulf began in the mid 1980s. Iran and Iraq were at war. Iraq had begun attacking Iranian oil facilities and tankers; in response, Iran began attacks against ships flying flags of countries sympathetic to Iraq. U.S. Navy ships quickly began escort and protection operations for U.S.-flagged tankers.

As the war between Iran and Iraq widened, so did the dangers to U.S. Navy ships operating in the Gulf. Iran started laying mines in the Gulf and began using small suicide boats to raid U.S. tankers and naval units. Iraq also possessed weapons that could cause tremendous damage and casualties. These weapons proved costly to the United States in May 1987. An Iraqi aircraft mistakenly fired two missiles that struck USS *Stark* (FFG-31), killing 37 sailors and wounding many more. In April 1988 Iran's use of mines caused considerable damage to USS *Samuel B. Roberts* (FFG-58). Until that time the U.S. Navy's presence was largely defensive. When forced to take offensive action, the United States acted quickly. U.S. Navy ships bombarded an Iranian oil platform being used as a command post and sank a mine-laying vessel carrying out operations.

After the war between Iran and Iraq ended in 1989, our naval presence decreased until August 1990. At that time Iraq invaded Kuwait and began taking U.S. citizens hostage. The rapid increase in naval units began and resulted in the largest number of U.S. Navy ships deployed to one area since Vietnam.

THE MISSION OF THE NAVY

There is a homely adage which runs “speak softly and carry a big stick; you will go far.” If the American nation will speak softly and yet build and keep at a pitch of highest training a thoroughly efficient Navy, the Monroe Doctrine will go far.

—Theodore Roosevelt
Speech at Minnesota State Fair
Sept. 2, 1902

The mission of the Navy is specified in Title 10 of the U.S. Code. The Navy's mission is defined as "preparedness to conduct prompt and sustained combat operations at sea." That may seem like a simple statement, but it requires a great deal to accomplish.

To accomplish that stated mission, the Navy has divided its mission requirements into four areas. Those areas are (1) strategic deterrence, (2) sea control, (3) projection of power ashore, and (4) naval presence.

STRATEGIC DETERRENCE

Strategic deterrence has three objectives. The first is to deter (prevent or discourage) an all-out attack on the United States or its allies. The second objective is to cause any possible attacker to face an unacceptable risk in the event of an attack. The final objective is to keep a stable political situation and good security for the United States and its allies that can withstand the threat of attack or blackmail.

How is that to be done? The Navy has two tactics to accomplish the objectives of strategic deterrence. First, the Navy maintains an ASSURED SECOND-STRIKE CAPABILITY. That means if an enemy launched an all-out attack, the United States could deliver massive retaliation (counterattack) even after the attack. The Navy's fleet ballistic missile (SSBN) forces are the backbone of the first tactic because of their high probability of surviving a nuclear attack. Second, the Navy limits itself to a CONTROLLED RESPONSE. That means the Navy will respond to a partial attack *only* to the degree required. That tactic is hoped to prevent a nuclear war. Again, the SSBN fleet is the basis for this tactic.

SEA CONTROL

Sea control is defined as denying the use of the seas to the enemy and assuring the use of the seas to the United States and its allies. In today's world, exercising sea control is only possible over limited areas of the sea rather than the entire sea.

Sea control is accomplished by four tactics: sortie control, chokepoint control, open area operations, and local engagement. Many weapons and weapons systems can be used with those tactics. The correct tactic and weapons systems depend on the situation.

SORTIE CONTROL is used to keep an enemy within ports and bases. As the enemy attempts to sortie (go on missions), the enemy units are

destroyed. Submarines and mines are often used with this tactic.

CHOKE POINT CONTROL is used to prevent the enemy from going through geographical bottlenecks. The enemy must concentrate forces when at these points and is, therefore, vulnerable to attack.

OPEN AREA OPERATIONS are used when the tactics above do not work or if the enemy is already loose at sea or in the air. Search and surveillance systems are used to locate and track the enemy before an attack.

LOCAL ENGAGEMENT is the final tactic. It involves a concentration of forces in a limited area. Those forces will attack an enemy when it enters their weapons range either before or after an enemy attack.

PROJECTION OF POWER ASHORE

Projection of power ashore involves the impact of naval forces on land forces. Three types of actions are used to project power ashore: AMPHIBIOUS ASSAULT, NAVAL BOMBARDMENT, and TACTICAL AIR PROJECTION.

Amphibious assault and naval bombardment are probably familiar to you. Tactical air projection may not be too clear. Actually, tactical air projection can be divided into four categories.

The first category, DEEP INTERDICTION, involves carrier-based air attacks outside the battle area. Those attacks are designed to destroy or cripple the enemy's military potential.

The second, BATTLEFIELD INTERDICTION, involves carrier-based air attack on military targets of immediate importance. That tactic is used to slow the enemy's movement of supplies and reinforcements.

The third, CLOSE AIR SUPPORT, involves direct support to the front-line ground troops. Specially trained Marine Corps air units provide that support through precision attacks on targets just ahead of the front-line troops.

The fourth, COUNTER AIR/ANTIAIR WARFARE, is designed to keep the enemy from using aircraft or missiles to attack our forces or defend the enemy's forces. It involves attacks on enemy aircraft, missile installations, and airfields.

NAVAL PRESENCE

Naval presence is the use of naval forces to achieve political objectives without going to war through PREVENTIVE DEPLOYMENTS and RESPONSIVE DEPLOYMENTS.

Preventive deployments are a show of force during peacetime to indicate the capability of the Navy's forces. Responsive deployments are an indication of the response of the Navy to a crisis situation.

In either case, the presence of the Navy is a threat of action. That threat does not have to be spoken. The mere presence of the Navy will, hopefully, be enough to cause the problem to disappear. The presence of United States naval forces can reassure allies and deter possible aggression from potential enemies.

SUMMARY

The United States Navy began more than 200 years ago with two ships, but today we are the finest naval force in history. History and the Navy—that is a big story and an exciting one. We've only rippled the surface here, but maybe we've stimulated your curiosity enough that you will want to take a closer look at your Navy's past.

If so, visit your ship or station library. You will find many fine books on naval history there.

From Flamborough Head to the Persian Gulf, the U.S. Navy has always been "on station" in time of trouble. The U.S. Navy's mission of preparedness to conduct prompt and sustained combat operations at sea means the U.S. Navy will be present at the first sign of conflict.

Our ability to quickly deploy large carrier battle groups and surface action groups quickly will assure our allies of our ability to exercise sea control. That ability, coupled with the U.S. submarine forces' strategic deterrence objective, will allow the United States and its allies the ability to deter further hostile action worldwide.

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CHAPTER 3

NAVAL ORGANIZATION

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Define the scope and purpose of the Standard Organization and Regulations of the U.S. Navy.
2. Define the purpose and content of the command standard organization and regulations manual.
3. State the purpose and function of the chain of command.

Organization is the element of administration which entails the orderly arrangement of materials and personnel by functions in order to attain the objective of the unit. Organization establishes the working relationship among unit personnel; establishes the flow of work; promotes teamwork; and identifies the responsibility, authority and accountability of individuals within the unit.

— *Standard Organization and Regulations of the U.S. Navy, OPNAVINST 3120.32B*

As stated in chapter 2 of this manual, the primary mission of the Navy is to support U.S. national interests. To do that, the Navy must be prepared to conduct prompt and sustained combat operations at sea. Each Navy unit must be prepared to engage in battle and support other units and forces in battle. Meeting the objectives of this mission requires organization. This chapter presents information about naval organization, including the Department of Defense, the Department of the Navy, a typical unit organization, and the chain of command.

DEPARTMENT OF DEFENSE

In 1949 the United States created the Department of Defense (DOD) as part of its security program. The DOD consists of various agencies and three military departments—Army, Navy, and Air Force. It includes the Joint Chiefs of Staff, consisting of a chairman, the military heads of each department, and the Commandant of the Marine Corps. The Department of Defense maintains and employs armed forces to carry out the following missions:

1. Support and defend the Constitution of the United States against all enemies, foreign and domestic
2. Ensure, by timely and effective military action, the security of the United States, its possessions, and areas vital to its interests
3. Uphold and advance the national policies and interests of the United States
4. Safeguard the internal security of the United States

Figure 3-1 shows how the armed forces fit into the organization of the Department of Defense to carry out these missions. The Department of Defense is headed by the Secretary of Defense (SECDEF). Each military department is headed by a civilian secretary, such as the Secretary of the Navy (SECNAV). One of these military departments is the Department of the Navy, of which you are a part.

DEPARTMENT OF THE NAVY

The Department of the Navy has two main objectives. The first objective is to organize, train, equip, prepare, and maintain the readiness of Navy and Marine Corps forces to perform military missions. These forces carry out military missions as directed by the President or the Secretary of Defense. The second objective is to support the Navy and Marine Corps forces as well as the forces of other military departments. The Department of the Navy supports these forces as directed by the Secretary of Defense.

Figure 3-2 shows the basic organization of the Department of the Navy. It consists of the Navy

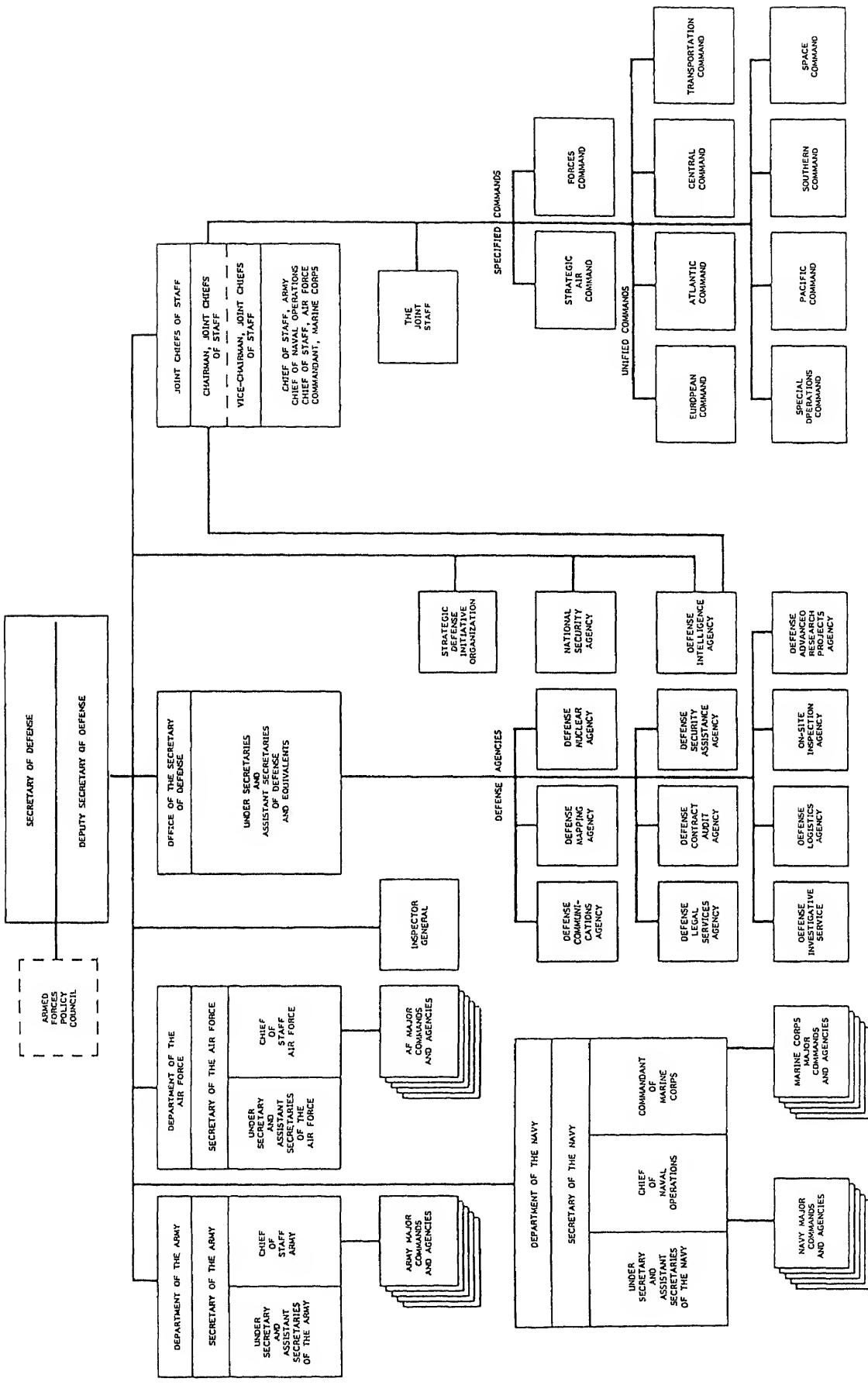
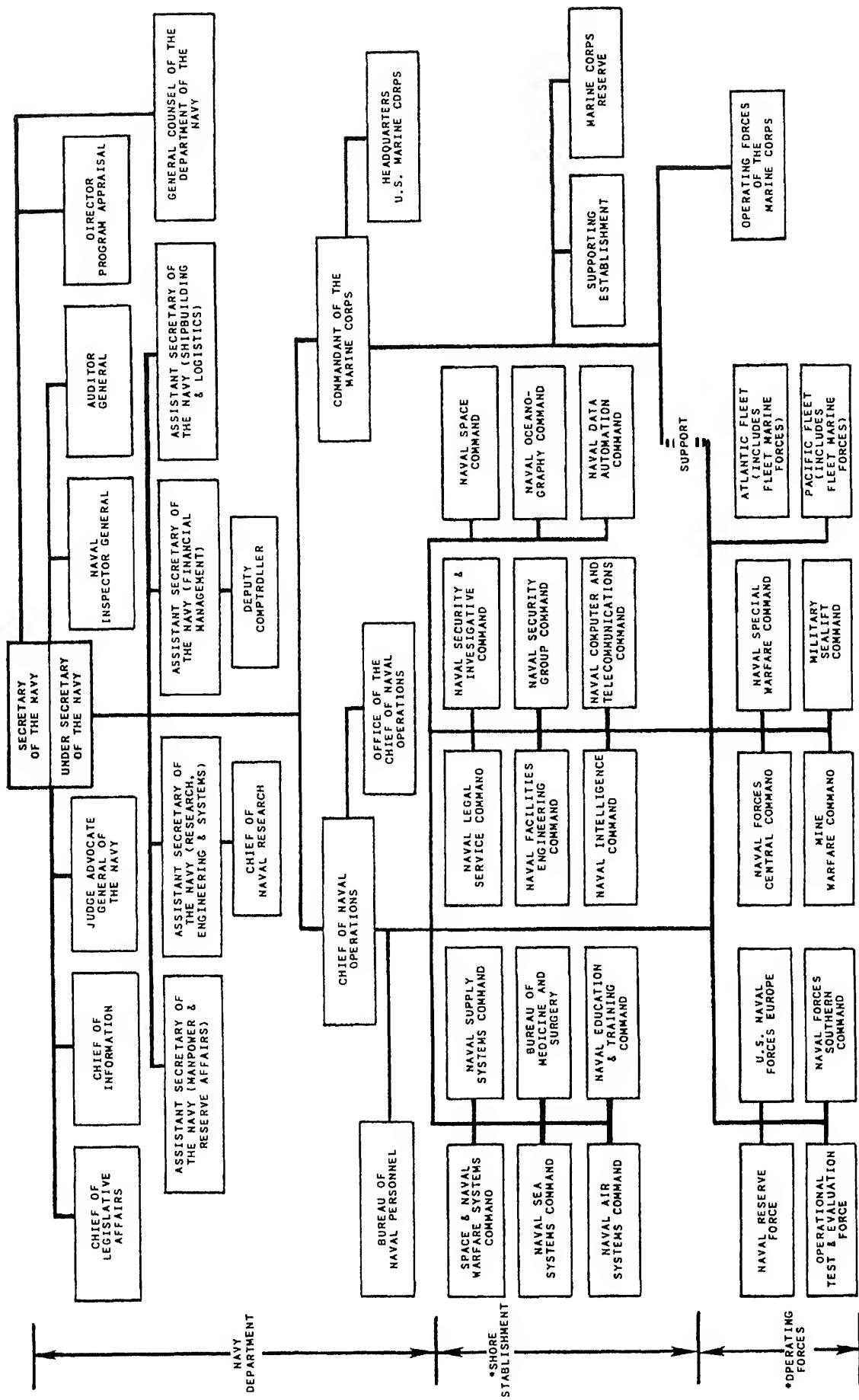


Figure 3-1—Organizational chart of the Department of Defense.



* ALSO INCLUDES OTHER DESIGNATION ACTIVITIES NOT SHOWN ON THE CHART WHICH ARE UNDER THE COMMAND OR SUPERVISION OF THE ORGANIZATIONS DEPICTED

Department (the executive offices); Headquarters, United States Marine Corps; and all Navy and Marine Corps operating forces and their Reserve components. It includes all shore activities, headquarters, forces, bases, and installations under the control or supervision of the Secretary of the Navy. The shore establishment supports the operating forces of the Navy.

THE OPERATING FORCES

The operating forces consist primarily of combat and service forces, including several fleets and the Fleet Marine Forces. They include the Coast Guard (when operating as a part of the Navy) and other forces and activities as assigned by the Secretary of the Navy. They are under the command of the Chief of Naval Operations (CNO).

The operating forces have four major fleet commands, all under the command of the CNO. These commands are the Atlantic and Pacific Fleets; Naval Forces, Europe; and the Military Sealift Command (MSC).

The Atlantic and Pacific Fleets include ships and craft organized into commands by type. These type commands are fleet training commands; amphibious forces; fleet marine forces; naval air forces; cruiser-destroyer forces; mine warfare forces; submarine forces; and service commands, groups, and units.

Ships provided by type commanders make up the operational (numbered) fleets. The Pacific Fleet includes the Third and Seventh Fleets, and the Atlantic Fleet has the Second Fleet. Naval Forces, Europe, consists mainly of the Sixth Fleet.

The primary mission of the MSC is to provide immediate sealift capability in an emergency. The MSC also supports scientific projects and other programs for agencies and departments of the United States. The Navy operates the MSC for the use of all services. It consists of ships manned by civilian government employees and commercial ships employed on a contract basis. The ships transport service personnel and their dependents, combat troops, supplies, and materials to all parts of the world.

UNIT ORGANIZATION

The purpose of a unit's organization is to help accomplish the mission of that unit. Even though each unit has its own mission in support of the overall mission of the Navy, each unit should have the same basic

organization. Therefore, the Navy developed the *Standard Organization and Regulations of the U.S. Navy (SORN)*, OPNAVINST 3120.32B, as a guide.

STANDARD ORGANIZATION AND REGULATIONS OF THE U.S. NAVY

Standard Organization and Regulations of the U.S. Navy describes the many aspects of the standard unit organization.

Each unit in the Navy has a ship's/command's organization and regulations manual based upon this OPNAV instruction. Aboard ship this manual is usually referred to as the *Shipboard Organization and Regulations Manual (SORM)*.

SHIP'S/COMMAND'S ORGANIZATION AND REGULATIONS MANUAL

The ship's/command's organization and regulations manual governs the unit's administrative organization (including watches). It governs the coordination of evolutions and emergency procedures and the conduct of personnel in the unit. Its purpose is to provide a ready source of information concerning the duties, responsibilities, and authority of unit personnel. Ships/commands usually require all newly reporting personnel to read the manual and sign a statement to that effect.

Discussing the organization of every unit in the Navy would be impossible. Therefore, this chapter will present information on a standard shipboard organization and a standard aircraft squadron organization.

SHIPBOARD ORGANIZATION

The officers and enlisted personnel needed to keep the ship at its most effective state of readiness to fight make up a ship's wartime organization. Even during peacetime operations, the organization is basically a war organization that can be expanded quickly if a wartime operation should become necessary. The two elements of the ship's organization are the **BATTLE ORGANIZATION** and the **ADMINISTRATIVE ORGANIZATION**.

THE BATTLE ORGANIZATION

The battle organization lists the numbers and specialties of the personnel a unit will need to fulfill its wartime missions. The unit's battle organization

depends on its armament, equipment, and personnel. As a part of the battle organization, you should know your assignments as posted on the watch, quarter, and station bill. A later chapter will cover the conditions of readiness for battle and the watch, quarter, and station bill.

THE ADMINISTRATIVE ORGANIZATION

The administrative organization ensures the ship can fight or otherwise carry out its mission. It also provides for training, maintenance, and routine operations. Heading the organization is the commanding officer (CO), assisted by the executive officer (XO) and other officers.

As shown in figure 3-3, each ship is organized into at least five departments: navigation, operations, engineering, supply, and a fifth department. For most ships, this fifth department is the weapons/deck department. Some ships have a separate deck department in addition to a weapons department, and some have a deck department instead of a weapons/deck department. Specially designated ships have a combat systems department instead of a weapons or weapons/deck department.

Additional departments may be assigned according to ship type. Some of these departments are air, medical, dental, and repair.

Each department is under a department head. Departments are usually divided into divisions, under a division officer. Each division is subdivided into sections, usually under senior petty officers.

The following paragraphs describe the responsibilities of the five standard departments.

Navigation Department

The navigation department is responsible for the safe navigation and piloting of the ship. It is responsible for the operation, care, and maintenance of navigation equipment, charts, publications, and records.

Operations Department

The operations department needs several divisions to carry out tasks such as collecting and evaluating combat and operational information and conducting electronic warfare. Other tasks involve gathering and analyzing intelligence information, repairing electronic equipment, controlling aircraft, and forecasting weather. The operations department is usually in charge of all the radar, sonar, and communications equipment on the

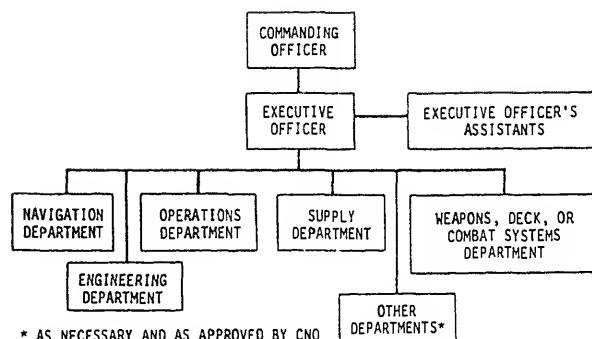


Figure 3-3.—Typical ship organizational chart.

ship. The combat information center (CIC) is part of the operations department.

Engineering Department

The engineering department, under the engineer officer, is responsible for the operation, care, and maintenance of all propulsion and auxiliary machinery. It is responsible for the control of damage resulting from fire, explosion, collision, and so forth. The engineering department provides power, light, ventilation, heat, refrigeration, compressed air, and freshwater throughout the ship.

The engineer officer may have several assistants, such as the main propulsion assistant, the damage control assistant, and the electrical officer.

Supply Department

Among other responsibilities, the supply department is in charge of operating the general mess, including preparing and serving food. The supply department operates the ship's store, which provides personal articles for the ship's crew. It manages the clothing and small stores issue room, where crew members may buy uniform items. The supply department's disbursing office maintains the pay records of the crew. The supply department orders and receives general stores, supplies, spare parts, and equipment for the ship. In fact, it orders just about everything that comes aboard the ship, other than people.

Weapons, Deck, or Combat Systems Department

Surface combatants using ordnance (gun batteries, torpedoes, missiles, and so forth) have a weapons department, headed by a weapons officer. Some surface

combatants with complex combat systems and some classes of submarines have combat systems departments, headed by combat systems officers. Ships with offensive capabilities unrelated to ordnance have a deck department, headed by the first lieutenant. Aircraft carriers and some other ships have a weapons or combat systems department in addition to a deck department.

The weapons or combat systems officer is responsible for the operation, care, and maintenance of the ship's armament and the weapons' fire-control equipment. The department is responsible for the care, handling, stowage, accountability, and issue of ammunition and pyrotechnics. It is also responsible for the maintenance of magazines and the external security of the ship.

If the ship has no air department, the weapons or combat systems department is responsible for the launching and recovery of assigned aircraft.

If the ship has no deck department, the weapons department is responsible for the preservation and cleanliness of the external areas of the ship not assigned to other departments. It operates the paint, sail, and boatswains' lockers and inspects and maintains survival equipment. It is in charge of all deck seamanship operations and the care and use of deck equipment.

If the ship has a deck department but no weapons or combat systems department, the first lieutenant (head of the deck department) is responsible for these deck functions. For ships that have a combat systems department but no deck department, the operations department is responsible for these deck functions.

COMMANDING OFFICER

Specific duties of the commanding officer (CO) are many and varied. In fact, one entire chapter in *Navy Regulations*, consisting of nearly 70 articles, applies to commanding officers. In general, the CO is responsible for the safety, well-being, and efficiency of the command.

The commanding officer's responsibilities include the safe navigation of the ship and the condition and appearance of the material and personnel. The CO must also ensure the proper stationing of trained lookouts and the preparation of the ship for battle. The CO may delegate authority in these matters, but such delegation does not relieve the CO of responsibility. The officer of the deck (OOD), for example, has authority to run the ship; but if a collision occurs, the CO is still responsible.

The commanding officer must exert every effort to maintain the command in a state of maximum effectiveness for war. The commanding officer issues the necessary directions to the executive officer. With the assistance of the various department heads, the XO then prepares and conducts exercises and drills needed to prepare the ship for battle.

During combat, the commanding officer must direct the members of the crew in fighting to the best of their ability until action is complete. The commanding officer's battle station is that station from which the CO can best direct the fighting. If the ship should sink, both custom and regulations require the commanding officer to assure the completion of abandon ship procedures. All personnel should be off the ship before the commanding officer leaves it.

The commanding officer's power is authoritative and complete and has been for centuries. With ultimate responsibility for the ship and everything pertaining to it, the commanding officer must have authority equal to the responsibility. To ensure efficiency, responsibility, and discipline, the commanding officer must have the power to enforce prompt obedience to orders. As set forth in the *Uniform Code of Military Justice (UCMJ)*, the commanding officer has the power to impose limited punishment. (Chapter 6 of this book covers the *UCMJ*.) This power is a part of a CO's responsibility in commanding and may not be delegated.

Since the ship has only one CO but many crew members, a senior enlisted member helps in handling these matters. The member assigned to help the CO must be a senior enlisted person such as a master chief, a senior chief, or a chief petty officer (depending on the senior rate within the command). This person receives assignment as the command master chief (CM/C), command senior chief (CS/C), or command chief (CCh), as appropriate. This individual transmits ideas and recommendations directly to the commanding officer and normally through the force or fleet master chief (FM/C) and then to the master chief petty officer of the Navy (MCPON).

If the commanding officer is absent, disabled, relieved from duty, or detached without relief, another officer must assume the CO's responsibilities. This person is the next senior line officer attached to and aboard the ship who is eligible for command at sea. In most cases, this person is the executive officer.

EXECUTIVE OFFICER

The executive officer (XO) is the aide or "executive" to the commanding officer. The executive officer is usually the next ranking line officer aboard ship. As such, the XO is the direct representative of the commanding officer in maintaining the general efficiency of the ship. With the aid of department heads, the XO arranges and coordinates all ship's work, drills, exercises, and policing and inspection of the ship. The XO is also responsible for the command's assigned personnel.

The XO investigates matters affecting the discipline and conduct of the crew and makes recommendations concerning these matters to the commanding officer. The executive officer usually approves or disapproves liberty lists and leave requests. If the XO cannot fulfill the duties of the office, the next senior line officer assigned to the ship normally assumes those duties.

When the ship is cleared for action, the executive officer inspects it and receives readiness reports from the various department heads. The XO then reports to the commanding officer when the ship is ready for action.

If the captain is disabled during battle, the executive officer normally becomes the acting commanding officer. For this reason, the location of the executive officer's battle station, as determined by the captain, is some distance from the captain's. This prevents disablement of both officers at the same time. After battle the executive officer makes a detailed report to the commanding officer.

Depending on the size of the ship, the executive officer may have one or more assistants. These assignments often are collateral duties of other officers. Some of these assistants and their responsibilities are as follows:

1. The PERSONNEL OFFICER assigns personnel to the various departments, berthing arrangements, and the task of maintaining enlisted service records.
2. The TRAINING OFFICER secures school quotas, schedules orientation courses for newly reporting personnel, and helps prepare long- and short-range training schedules.
3. The EDUCATIONAL SERVICES OFFICER (ESO) receipts for, maintains, and distributes educational courses and training aids. (A later

chapter explains the details of the duties of the ESO.)

4. The DRUG AND ALCOHOL PROGRAM ADVISOR (DAPA) advises the commanding officer and executive officer on all matters concerning the Navy's Drug and Alcohol Abuse Program. The DAPA provides onboard education, prevention, screening, command counseling, aftercare, probationary supervision, motivational training, and referral services.
5. The COMMAND MASTER CHIEF (CM/C) assists in those duties described earlier in this chapter. While serving as one of the executive officer's assistants, the CM/C has direct access to the commanding officer.

In addition to the assistants listed, the executive officer may also have a legal officer, combat cargo officer, safety officer, and others as required. The master-at-arms force also works directly under the executive officer.

DEPARTMENT HEAD

As the representative of the commanding officer, the department head is responsible for and reports to the CO about all matters that affect the department. That includes administrative matters, the operational readiness of the department, and the general condition of equipment.

DIVISION OFFICER

The division is the basic unit of the shipboard organization. The number of divisions in a department varies among ships, with each division having only a few or as many as 200 personnel.

The commanding officer assigns division officers to command the divisions of the ship's organization. Division officers are responsible to and, in general, act as assistants to department heads.

The division officer is a major link in your chain of command, particularly in a small ship. At the working level, the division officer carries out command policies and personally sees that division tasks are completed in a timely manner.

The division officer makes frequent inspections of division personnel, spaces, equipment, and supplies. The division officer maintains copies of all division orders and bills and displays them in a conspicuous

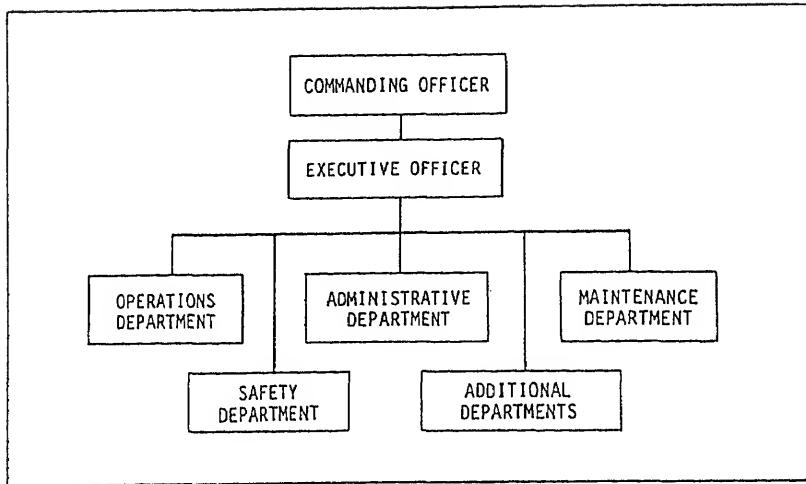


Figure 3-4.—Typical aircraft squadron organizational chart.

place. The division officer trains division personnel and prepares them for battle.

AIRCRAFT SQUADRON ORGANIZATION

The organization of an aircraft squadron differs in some ways from that of a ship. *Standard Organization and Regulations of the U.S. Navy* specifies the basic organization required of an aircraft squadron. Figure 3-4 shows a standard organizational chart of an aircraft squadron.

As you can see, an aircraft squadron has different departments than a ship. This is one of the differences between the organization of an aircraft squadron and a ship—the departments have different names and responsibilities.

The responsibilities of the commanding officer, executive officer, department heads, and division officers are the same in the organization of an aircraft squadron and a ship.

AIRCRAFT SQUADRON DEPARTMENTS

All aircraft squadrons have an administrative department and a safety department. Most squadrons also have an operations department and a maintenance department. Some squadrons have one or more departments in addition to the four already mentioned. Based upon its mission, the squadron may have a training, photographic, or intelligence department.

Administrative Department

The administrative (ADMIN) department is responsible for all the administrative duties within the squadron. This department takes care of official correspondence, personnel records, and directives. Most of the jobs done by the executive officer's assistants in a shipboard organization are done by ADMIN in an aircraft squadron. The personnel office, educational services office, public affairs office, and legal office are all part of the administrative department. The first lieutenant and command career counselor work as members of this department.

Safety Department

The safety department is responsible for all squadron safety program matters. This department is usually divided into ground safety, aviation safety, and naval air training and operating procedures standardization (NATOPS) divisions. (The NATOPS division makes sure standardized procedures are followed in the operation of the squadron's aircraft.)

Operations Department

The operations department is responsible for the operational readiness and tactical efficiency of the squadron. The operations department usually consists of the logs and records, schedules, training, communications, and navigation divisions.

Maintenance Department

The maintenance department is responsible for the overall maintenance of the squadron's aircraft. The maintenance department is usually divided into maintenance/material control; quality assurance; maintenance administration; and the aircraft, avionics/armament, and airframes divisions.

BRANCH OFFICER

A division on a ship is divided into watches or sections or both. In an aircraft squadron, the divisions are divided into branches, each headed by a branch officer. In aircraft squadrons, the branch officer is the officer with whom you will have the most direct contact.

The branch officer is directly responsible to the division officer. The branch officer has the same responsibilities for the branch that the division officer has for the division. Thus, the branch officer makes frequent inspections of branch personnel, spaces, equipment, and supplies. The branch officer also ensures branch tasks are completed in a timely manner.

CHAIN OF COMMAND

The chain of command is the relationship of juniors and seniors within an organization. The organizational charts you have seen in this chapter represent chains of command.

An effective chain of command and good leadership are essential for the Navy to carry out its assigned mission. Good leadership supports an effective chain of command and vice versa; neither works well without the other.

The chain of command serves several purposes in the accomplishment of the Navy's mission. It defines responsibilities and identifies accountability. Properly used, it provides direction and smooth communications and ensures efficiency.

RESPONSIBILITY

Responsibility requires that an individual be accountable for the performance of assigned tasks within an organization. By defining responsibilities, the chain of command enables personnel to know what their responsibilities are and what they are expected to do.

The Navy expects its personnel to set good examples for their shipmates by doing their jobs quickly, correctly, and neatly. It also expects them to instill a

sense of pride in others to improve the efficiency of the command.

ACCOUNTABILITY

Everyone in a chain of command is accountable to someone for professional performance and personal actions. Accountability is the ability of personnel to report, explain, or justify every action taken. They do this through two types of accountability—job accountability and military accountability.

Job accountability means personnel must answer to seniors in the chain of command for the way in which they carry out an assigned task.

Military accountability means personnel must answer to senior military personnel for their personal behavior and military appearance.

DIRECTION

The chain of command provides direction in the assignment of duties. All members of the chain of command know their specific duties. Seniors assign these duties, and juniors should carry them out to the best of their ability.

COMMUNICATION

The chain of command provides for smooth, rapid, and effective communication when each person clearly understands his or her status within that chain. Seniors should pass information down the chain of command about matters that may affect juniors. Juniors should pass information up the chain of command about problems that exist. In this way, communication flows in both directions.

WORK-RELATED PROBLEMS

Work-related problems are situations that affect a person's job performance. A work-related problem might be a situation in which a person feels mistreated by a senior. It could also be a situation in which a person needs leave or liberty because of an illness in the family.

The chain of command is responsible to each Navy member for solving work-related problems. When a person's immediate senior is unable to resolve a problem, the next senior in the chain of command tries to solve the problem. If the senior at that level of command is unable to resolve the problem, it then goes to the next level in the chain of command. The problem continues to be referred to each level in the chain of

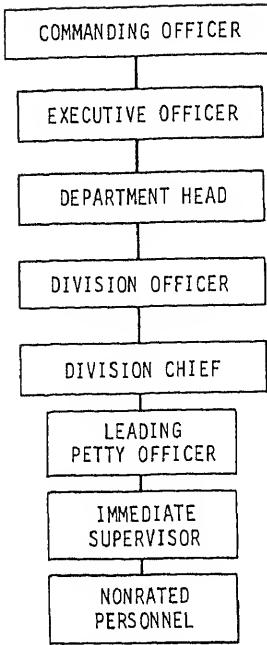


Figure 3-5.—Typical shipboard chain of command.

command until it is resolved. Personnel must always use the chain of command when seeking solutions to work-related problems.

TYPICAL CHAIN OF COMMAND

Figure 3-5 shows a typical shipboard, straight-line chain of command from the nonrated level to the commanding officer. An aircraft squadron's chain of command includes a branch officer.

For watch-standing assignments, the chain of command includes a section leader (not shown). The section leader may be from your division, but often is a petty officer from another division. The section leader makes watch assignments for all personnel assigned to the section. Inform the section leader of situations, such as leave or special liberty, that affect your availability for watch assignments.

In most cases, the chain of command shown in figure 3-5 is complete. However, the chain of command does not stop with the commanding officer. Remember, all people in the military are responsible to their seniors.

The chain of command extends from nonrated personnel all the way to the President of the United States. Figure 3-5 shows the shipboard chain of command from the nonrated person to the commanding officer. Figure 3-6 shows a typical chain of command from the commanding officer of a ship to the President. To learn your chain of command, ask someone in the

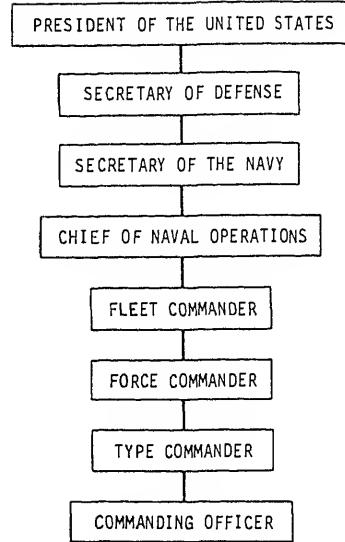


Figure 3-6.—Typical chain of command from the CO of a ship to the President.

administrative (Admin) office to show you the command's organizational chart.

SUMMARY

Where do I go? What do I do? Who is in charge? With the Navy's organizational structure, all personnel, from the CNO to the newest crew member, know what their job is, where they work, and who their supervisor is. Think about being at sea; it's midnight and the general alarm sounds. Are the gun mounts manned by personnel trained to handle them or just by the people that showed up first? What about the repair lockers, the engine rooms, or the bridge?

Without an organization that ensures properly trained personnel manning each billet, our ships could not be in a continual high state of readiness.

What about a problem in the work space? Who do we tell about it? Do we tell the department head? the captain?

Our chain of command works in both directions, up and down. The upper level keeps us informed of the types of operations being conducted and what types of hazards we face. The people in the lower levels must keep the upper levels informed of all difficulties experienced in the performance of assigned duties. Every level in the chain of command is an integral part of a team. Members at each level must do their part to make sure their command functions effectively.

Flight deck operations are a good example of the effects of proper organization. Ships could never carry out these operations without superior organization.

Every person knowing where to report, what job to do, and who to tell when things go wrong—that's organization.

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CHAPTER 4

CUSTOMS AND COURTESIES

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe the military courtesies required during colors.
2. State the procedures for rendering the hand salute.
3. Identify the personnel entitled to a hand salute.
4. Describe the proper procedures for introducing U.S. and foreign armed forces officers.
5. Describe the honors rendered for boats and passing ships.
6. Describe the courtesies required when in the vicinity of a gun salute.
7. Describe the procedures followed during morning and evening colors.
8. Describe the procedures for rendering honors when foreign national anthems are played.
9. State the procedures for boarding and leaving a naval vessel.
10. Explain the procedures for rendering honors when the national ensign passes or the national anthem is played.
11. Explain the proper handling of the national ensign and union jack.
12. Describe the customary procedures when crossing or in the vicinity of the quarterdeck.
13. State the procedures for introducing personnel of U.S. Armed Forces to one another.

The military services have a long history. Many traditions have been established as a result of this long history. If you are familiar with some of these traditions, you will understand the military better. These traditions can be broken down into various customs and courtesies.

A custom is a way of acting—a way that has continued consistently over such a long period that it has become like law. A courtesy is a form of polite behavior and excellence of manners. You will find that Navy life creates many situations, not found in civilian life, that require special behavior on your part. Customs and courtesies help make life orderly and are a way of showing respect.

Customs are regular, expected actions. This is because they have been repeated again and again and passed from one generation to the next. Courteous actions show your concern and respect for others and for certain objects or symbols, such as the American flag.

The use of customs, courtesies, and ceremonies helps keep discipline and order in a military

organization. This chapter will give you some of the more common day-to-day customs and courtesies and ways to deal with them.

MILITARY CUSTOMS

From time to time, situations arise that are not covered by written rules. Conduct in such cases is governed by customs of the service. Customs are closely linked with tradition, and much esprit de corps of the naval service depends on their continued maintenance. (Custom has the force of law; usage is merely a fact. There can be no custom unless accompanied by usage.)

A custom is a usual way of acting in given circumstances. It is a practice so long established that it has the force of law. An act or condition acquires the status of a custom under the following circumstances:

- When it is continued consistently over a long period

- When it is well defined and uniformly followed
- When it is generally accepted so as to seem almost compulsory
- When it is not in opposition to the terms and provisions of a statute, lawful regulation, or order

MILITARY COURTESIES

"Courtesy" can be defined as an act or verbal expression of consideration or respect for others. When a person acts with courtesy toward another, the courtesy is likely to be returned. We are courteous to our seniors because we are aware of their greater responsibilities and authority. We are courteous to our juniors because we are aware of their important contributions to the Navy's mission.

In the military service, and particularly in the Navy where personnel must live and work in rather close quarters, courtesy must be practiced in all that we do on and off duty. Military courtesy is important to everyone in the Navy. If you know and practice military courtesy, you will make favorable impressions and display a self-assurance that will carry you through many difficult situations. Acts of respect and courtesy are required of all members of the naval service; the junior member takes the initiative, and the senior member returns the courtesy.

SALUTING

One of the required acts of military courtesy is the salute. Regulations governing its use are founded on military custom deeply rooted in tradition. The salute is a symbol of respect and a sign of comradeship among service personnel. In form, the salute is simple and dignified, but there is great significance in that gesture. It is a time-honored demonstration of courtesy among all military personnel, and it expresses mutual respect and pride in the service. Personnel should never resent or try to avoid saluting persons entitled to receive the salute. (The privilege of saluting is generally denied prisoners because their status is considered unworthy of the comradeship of military personnel.)

The most common form of salute is the hand salute, but there are other types, such as gun and rifle salutes, which are discussed later in this chapter.

The Hand Salute

The hand salute probably originated in the days of chivalry, when it was customary for knights dressed in

armor to raise their visors to friends for the purpose of identification. Because of the relative position of rank, the junior was required to make the first gesture. Another school of thought traces the salute back to a custom at the time of the Borgias. Assassinations by dagger were not uncommon at that time, and it became the custom of men to approach each other with raised hand, palm to the front, to show that there was no weapon concealed.

In the U.S. Navy, however, it seems reasonable to assume that the hand salute came to us directly from the British navy. There is general agreement that the salute as now rendered is really the first part of the movement of uncovering. From the earliest days of military units, the junior uncovered when meeting or addressing a senior. Gradually, the act of taking off one's cap was simplified into merely touching the cap or, if uncovered, the head (forelock), and finally into the present form of salute.

The manner in which you render the hand salute depends on whether you are in civilian clothes or in uniform. Personnel in civilian clothes render the salute in two ways: (1) hat in front of the left shoulder (men only) or (2) right hand over the heart (men without hats; women with or without hats). These forms of saluting are used only to salute the flag or national anthem, never to salute officers.

When speaking of the hand salute, we will refer usually to the salute rendered by personnel in uniform. Except when walking, one should be at attention when saluting. In any case, head and eyes are turned toward the person saluted unless it is inappropriate to do so, such as when a division in ranks salutes an inspecting officer on command. When in uniform, Navy personnel salute the anthem, the flag, and officers as follows: The right hand is raised smartly until the tip of the forefingers touches the lower part of the headgear or forehead above and slightly to the right of the eye (fig. 4-1). The thumb and fingers are extended and joined. The palm is turned slightly inward until the person saluting can just see its surface from the corner of the right eye. The upper arm is parallel to the ground; the elbow is slightly in front of the body. The forearm is inclined at a 45-degree angle; hand and wrist are in a straight line. The salute is completed (after it is returned) by dropping the arm to its normal position in one sharp, clean motion. The salute should not be ended as though the person is waving to someone or trying to get something off the fingers. Navy custom permits left-hand saluting when a salute cannot be rendered with the right hand. Army and Air Force customs permit only right-hand salutes.

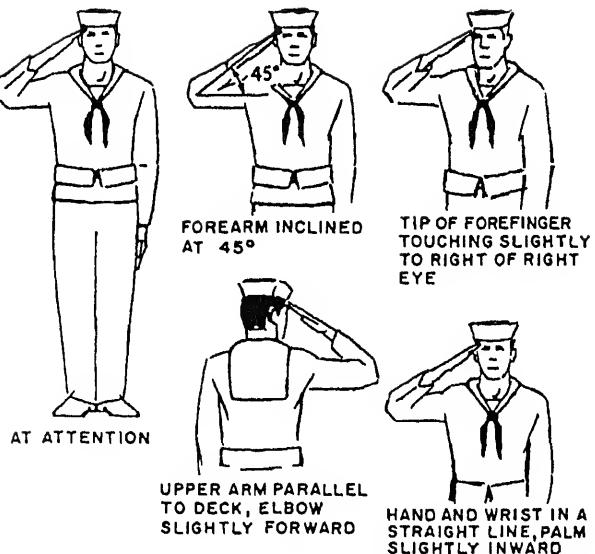


Figure 4-1.—Hand salute.

When you are walking, in a normal meeting situation, the hand salute is rendered when six paces from the person saluted, or at the nearest point of approach, if more than six paces. (Thirty paces is generally regarded as maximum saluting distance.) The salute should be held until the person saluted has passed or the salute is returned.

The hand salute, under naval customs, is accompanied by a word of greeting. The junior stands at attention, looks the senior straight in the eye and says (depending upon the time of day) the following:

From first rising until noon—"Good morning, . . ."

From noon until sunset—"Good afternoon, . . ."

From sunset until turning in—"Good evening, . . ."

It is preferable to call the senior by grade and name; that is, "Commander Jones," rather than by the impersonal "sir" or "ma'am."

When saluting, you should avoid certain common errors. The following are some of the major points you should remember:

1. If possible, always use your right hand. Use your left hand only if your right hand is injured. Use your left hand to carry objects and to leave your right hand free to salute.
2. Accompany your salute with a cheerful, respectful greeting; for example, "Good morning, sir"; "Good afternoon, Commander [Jones]"; "Good evening, Chaplain [Smith]."

3. Always salute from the position of attention. If you are walking, you need not stop; but hold yourself erect and square. If on the double, slow to a walk when saluting.
4. Look directly into the officer's eyes as you salute.
5. If you are carrying something in both hands and cannot render the hand salute, look at the officer as though you were saluting and render a verbal greeting as previously described.
6. Remove a pipe, cigar, or cigarette from your mouth or hand before you salute.
7. Salute officers even if they are uncovered or their hands are occupied. Your salute will be acknowledged by a verbal greeting such as, "Good morning"; "Good afternoon"; or something similar.
8. Army and Air Force policy, unlike the Navy's, is to salute when uncovered. Suppose you are in an office with several Army personnel, and all of you are uncovered. An officer enters and the soldiers rise and salute. You should do likewise; to do otherwise would make you seem ill-mannered or disrespectful.
9. If you are walking with or standing by a commissioned officer and the occasion for a salute arises, do not salute until the officer salutes. Assume that you are walking with a lieutenant. A commander approaches. Do not salute the commander until the lieutenant salutes; but as soon as the lieutenant starts to salute, you should quickly do the same.
10. When approaching an officer, start your salute far enough away from the officer to allow time for your salute to be seen and returned. This space can vary; but a distance of about six paces is considered good for this purpose. Hold your salute until it is returned or until you are six paces past the officer.
11. Salute all officers who are close enough to be recognized as officers. It is unnecessary to identify an officer by name; however, ensure that he or she is wearing the uniform of an officer.
12. Salute properly and smartly. Avoid saluting in a casual or perfunctory manner. A sharp salute is a mark of a sharp sailor.

Whom To Salute

Enlisted personnel must salute all officers, and officers must salute their seniors. Salutes are returned by persons saluted except when they are uncovered—the person saluted should acknowledge the salute with an appropriate greeting or a nod of the head.

Salutes are rendered to all officers of the Navy, Army, Air Force, Marine Corps, Coast Guard, National Oceanic and Atmospheric Administration, Public Health Service, and foreign military services. Salutes are also rendered to officers of the Navy, Army, Air Force, Marine Corps, and Coast Guard Reserves, as well as officers of the National Guard when they are on active duty. When not on active duty, they rate a salute only when they are in uniform.

Civilians who are entitled, by reason of their positions, to gun salutes or other honors are also entitled, by custom, to the hand salute. The President, as Commander in Chief of the armed forces, must always be saluted. Other civilians may be saluted by persons in uniform when appropriate, but the uniform hat or cap must not be raised as a form of salutation.

When To Salute

The occasion might arise when you are uncertain whether the person approaching you in uniform is an officer, thus rating a salute. The safest course of action on such an occasion is to salute immediately rather than to wait for the person approaching you to disclose his or her rank. In other words, when in doubt, salute. Figure 4-2 shows some examples of when to salute officers.

ABOARD SHIP.—When boarding a ship in which the national ensign is flying, all persons in the naval service must stop on reaching the upper platform on the accommodation ladder or the shipboard end of the brow, face the ensign, and salute. Following this, they salute the officer of the deck (OOD). On leaving the ship, personnel render the salutes in reverse order: first to the OOD and then to the national ensign. These salutes also are rendered aboard foreign men-of-war.

You are required to salute all flag officers (above the grade of captain), the commanding officer, and visiting officers (senior to the commanding officer) on every occasion of meeting, passing near, or being addressed. On your first daily meeting, you salute all senior officers who are attached to your ship or station. Many ships consider that salutes rendered at quarters suffice for this first salute of the day. When the progress of a senior officer may be blocked, officers and enlisted personnel

clear a path by calling out "Gangway" and stand at attention facing the senior officer until he or she has passed.

IN BOATS.—When a boat is not under way, the person in charge salutes officers that come alongside or pass nearby. If there is no one in charge, all those in the boat render the salute. Boat coxswains salute all officers entering or leaving their boats. (Although it is customary to stand when saluting, this formality is dispensed with if the safety of the boat is endangered by so doing.) When boat awnings are spread, enlisted personnel sit at attention while saluting; they should not rise. Officers seated in boats rise when rendering salutes to seniors who are entering or leaving.

When boats pass each other with embarked officers or officials in view, hand salutes are rendered by the senior officer and coxswain in each boat. Coxswains rise to salute unless it is dangerous or impracticable to do so.

IN A GROUP.—If enlisted personnel and officers are standing together and a senior officer approaches, the first to see the senior should call out "Attention," and all should face the officer and salute.

OVERTAKING.—You should never overtake and pass an officer without permission. When for any reason it becomes necessary for you to pass, you should do so to the left, salute when abreast of the officer, and ask, "By your leave, sir/ma'am?" The officer should reply, "Very well," and return the salute.

REPORTING.—When reporting on deck or out-of-doors ashore, you should remain covered and salute accordingly. When reporting in an office, you should uncover upon approaching the senior, and, therefore, should not salute.

SENTRIES.—Sentries at gangways salute all officers going or coming over the side and when passing or being passed by officers close aboard in boats or otherwise.

IN VEHICLES.—You salute all officers riding in vehicles, while those in the vehicle both render and return salutes, as may be required. The driver of the vehicle is obliged to salute if the vehicle is at a halt; to do so while the vehicle is in motion might endanger the safety of the occupants and so may be omitted.

IN CIVILIAN CLOTHES.—If you are in uniform and recognize an officer in civilian clothes, you should initiate the proper greeting and salute. In time of war, however, an officer not in uniform may be deliberately avoiding disclosure of his or her identity, so you should be cautious in following the normal peacetime rule.

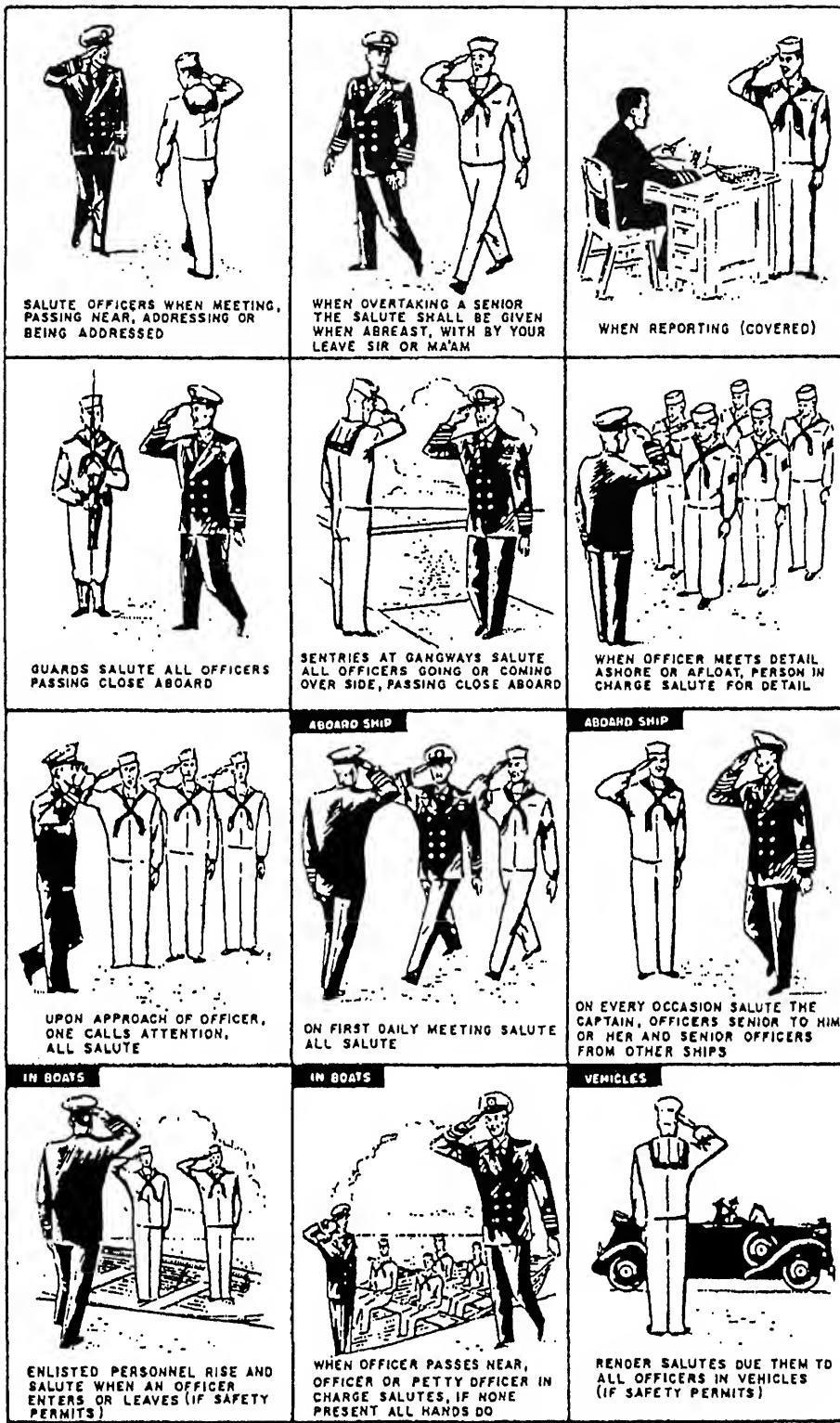


Figure 4-2.—When to salute officers.



Figure 4-3.—When not to salute officers.

AT CROWDED GATHERINGS.—At crowded gatherings or in congested areas, you normally salute only when addressing or being addressed by officers.

When Not To Salute

There are some situations in which it is improper for you to salute (fig. 4-3). These are as follows:

1. When uncovered, except where failure to salute might cause embarrassment or misunderstanding
2. In formation, except on command

3. On a work detail (The person in charge of the detail salutes.)
4. When engaged in athletics or assembled for recreation or entertainment
5. When carrying articles with both hands, or otherwise so occupied as to make saluting impracticable
6. In public places where saluting is obviously inappropriate (theaters, restaurants, elevators, and so forth)
7. In public transportation

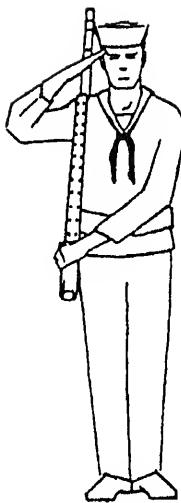


Figure 4-4.—Hand salute at sling arms.

8. When a member of the guard is engaged in performance of a duty that prevents saluting
9. In action or under simulated combat conditions
10. At mess (When addressed, stop eating and show respectful attention.)
11. When guarding prisoners

Rifle Salutes

When armed with a rifle, you should use one of the three rifle salutes described in this section instead of the hand salute. (The salute at sling arms shown in fig. 4-4 is simply a hand salute and is not considered a rifle salute.) The occasions for rendering each type of rifle salute are as follows:

1. Present arms (fig. 4-5, view A)
 - a. When standing in a sentry box or on a post and addressed or approached by any person entitled to a salute.
 - b. When halted while on patrol (such as an area security patrol) to reply to or to address an officer.
 - c. When in ranks and so commanded; for example, at colors.
2. Rifle salute at order arms (fig. 4-5, view B)
 - a. When standing sentry or guard duty by a door inside a building. Present arms may also be required by competent authority, but where there is considerable traffic, the salute at order arms is usually prescribed.

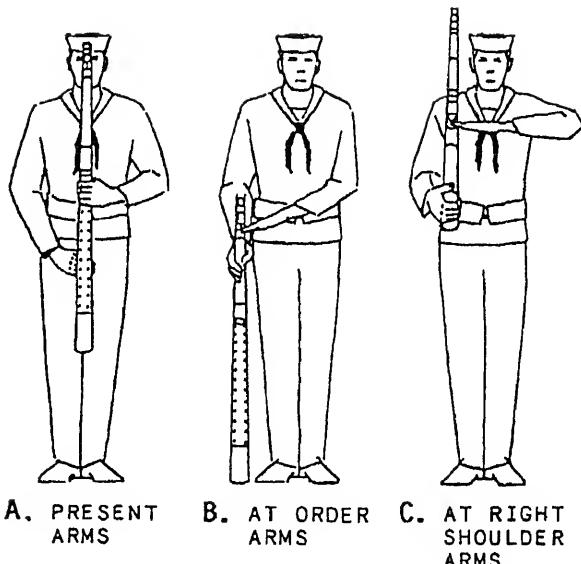


Figure 4-5.—Rifle salutes.

- b. When reporting individually to an officer indoors. For example, you would approach an officer's desk at trail arms, come to order arms, and render the rifle salute at order arms.
- c. When reporting a roll call (if already at order arms).
3. Rifle salute at right shoulder arms (fig. 4-5, view C)
 - a. When on patrol and passing, without halting, a person entitled to a salute.
 - b. When leading a detail past an officer.
 - c. When reporting a roll call (if already at shoulder arms).
 - d. When reporting at shoulder arms to an officer outdoors.
 - e. When going individually to and from drill or place of duty and you pass any person entitled to a salute.

HONORS

Honors are salutes rendered to ships, to high-ranking individuals, and to nations. The type of honors rendered depends upon who or what is being saluted. Passing honors are rendered by a ship to other ships and to boats having officials embarked. Side honors are rendered to officials or officers as they board and depart a Navy ship. Gun salutes are rendered to high-ranking individuals, to nations, and to celebrate national holidays. Honors are not rendered to nations or

officials of nations not recognized by the United States. Officials and officers who request that the honors be dispensed with do not receive them.

Passing Honors

Passing honors are those honors, other than gun salutes, rendered on occasions when ships or embarked officials or officers pass, or are passed, close aboard. "Close aboard" means passing within 600 yards for ships and 400 yards for boats. Passing honors between ships, consisting of sounding "Attention" and rendering the hand salute by all persons in view on deck and not in ranks, are exchanged between ships of the Navy and between ships of the Navy and the Coast Guard passing close aboard.

Signals for the actions required to be performed by personnel are as follows:

One blast—Attention (to starboard)

Two blasts—Attention (to port)

One blast—Hand salute

Two blasts—End salute

Three blasts—Carry on

(Signals are given by police whistle on small ships and by bugle on large ships.)

On the signal of "Attention," all hands in view on deck (starboard or port as indicated by number of blasts) should come to attention and face outboard. At the sound of one blast, all hands in view and not in ranks should salute. (When personnel are in ranks, only the division officer and the division petty officer should salute; all other persons should stand at attention.) At two blasts, persons saluting should bring their hands back to their sides but remain at attention until three blasts are sounded.

For boats passing honors, flag officers, unit commanders, or commanding officers in uniform embarked in boats should be saluted by all persons on the quarterdeck.

Passing honors for the President of the United States and for rulers of foreign nations include manning the rail. Manning the rail consists of the ship's company lining up at regular intervals along all weather deck rails. Normal saluting procedures are followed.

Having the crew at quarters when the ship is entering or leaving port is a less formal ceremony than manning the rail. The crew is paraded at quarters on ceremonial occasions, such as when the ship is entering

or leaving U.S. ports at times other than operational visits, when the ship is visiting foreign ports, when the ship is departing for or returning from extended deployments, and other special occasions as determined by a superior. When the ship is entering or leaving U.S. ports on operational visits or home port on local operations, the normal procedure is to parade only an honor guard.

Side Honors

Side honors, rendered to officers and officials boarding and departing the ship, are a part of the honors stipulated on the occasion of an official visit. The honors consist of parading the proper number of side boys and piping the side.

Acting as a side boy may be one of your shipboard duties. When you are assigned to side boy duty, you must remain in dress uniform and in the vicinity of the quarterdeck at all times, ready to fall in when required. Your uniform must be clean and neat, and you must be especially neat and military in appearance. Enlisted women may be detailed to this duty, but they are still called side boys.

Side boys are paraded between 0800 and sunset daily except on Sunday. They normally are not called away during meal hours, general drills, all hands evolutions, or periods of regular overhaul except in honor of civil officials or foreign officers; then they may be called away at any time during daylight. The number of side boys paraded varies from two to eight (always an even number), depending on the rank of the individual being saluted.

When called away, side boys form two ranks facing each other to form a passageway at the gangway. When the Boatswain's Mate begins to pipe the call "Over the Side," the side boys salute in unison, hold the salute until the last note of the call, and then drop their hands smartly to their sides.

Gun Salutes

Gun salutes are used to honor individuals, nations, and certain national holidays. Practically all shore stations have saluting batteries, but not all ships are so equipped. Whether aboard ship or ashore, you must be able to act properly whenever you hear a gun salute being rendered.

The salutes always consist of an odd number of guns, ranging from 5 for a vice consul to 21 for the President of the United States and for rulers of foreign

nations recognized by the United States. Military officers below the rank of commodore are not entitled to gun salutes. Normally, only one gun is fired at a time at intervals of about 5 seconds. During the salutes, persons on the quarterdeck, or in the ceremonial party, if ashore, should render the hand salute. All other personnel in the vicinity (in the open) should stand at attention and, if in uniform, render the hand salute.

Gun salutes also mark special occasions in our country's history. On President's Day, Memorial Day, and Independence Day, a standard 21-gun salute is fired at 1-minute intervals, commencing at 1200. A minute-gun salute is one fired at 1-minute intervals. Thus, on these holidays, the salute ends at 1220.

MILITARY CEREMONIES

Ceremonies are formal acts performed on public occasions. There are too many types of ceremonies, and too many occasions when they are performed, to include them all here. Instead, we will discuss some of the more common situations involving a formal ceremony and the behavior required of you during the event.

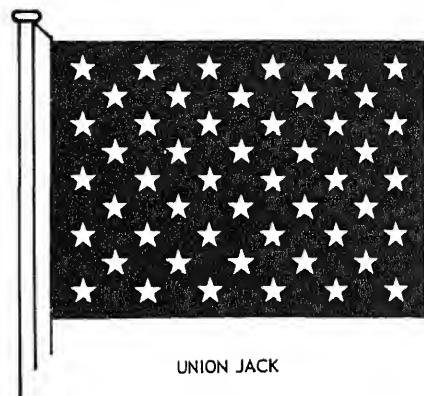
COLORS

At commands ashore and aboard ships of the Navy not under way, the ceremonial hoisting and lowering of the national flag at 0800 and sunset are known as morning and evening colors. Every Navy shore command, and every ship not under way, performs the ceremony of colors twice a day.

You will render honors as follows:

- if you are in ranks, you will be called to attention or order arms.
- If you are in uniform but not in ranks, face the colors and give the hand salute.
- If you are driving a vehicle, stop and sit at attention but do not salute.
- If you are a passenger in a boat, remain at attention, seated or standing. The boat officer or coxswain salutes for the boat.
- If you are in civilian clothes or athletic uniform, face the colors at attention and salute by placing your right hand over your heart.

Aboard Navy ships or naval shore activities, when the national ensign is hoisted and lowered or half-masted for any occasion, the motions of the senior officer present are followed. Five minutes before



UNION JACK

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Figure 4-6.—Union jack.

morning and evening colors, the PREPARATIVE pennant (called PREP) is hoisted. Ceremonies for colors begin when PREP is hauled to the dip (the half-way point).

Navy ships not under way also hoist and lower the union jack on the jackstaff, at the ship's bow, at morning and evening colors. The union jack is also flown from a yardarm to denote that a general court-martial or court of inquiry is in session. The union jack is the rectangular blue part of the United States flag containing the stars (fig. 4-6).

If a band is available for color ceremonies, "Attention" is sounded, followed by the band playing the national anthem. At morning colors, hoisting of the ensign begins when the music starts. It is hoisted smartly to the top of the flagstaff. At evening colors, lowering of the ensign also starts at the beginning of the music. Hoisting and lowering of the ensign are so regulated as to be completed at the last note of the music. The national flag is always hoisted smartly and lowered ceremoniously. "Carry on" is sounded at the completion of the music.

If a band is not available for colors, "To the Colors" is played on the bugle at morning colors, and "Retreat" is played at evening colors. For ships having neither a band nor a bugler, "Attention" and "Carry on" are signals for beginning and terminating the hand salute.

Sometimes the music for colors from another U.S. ship can be overheard aboard your ship. When this happens, and no band or bugler is aboard your ship, the command to "Carry on" should not be given until the music being overheard is completed.

After morning colors, if foreign warships are present, the national anthem of each country represented

is also played. If your ship is visiting a foreign country, the national anthem of that country is played immediately following morning colors, followed by the national anthems of any other foreign nations represented.

On Sundays, authorized holidays, and other days as may be proclaimed by the President, the largest national ensign in the ship's or station's allowance is flown. This ensign is referred to as holiday colors. When the holiday colors is flown on a Navy ship not under way, the union jack flown is of the same size as the blue field in the holiday colors.

Ships that are under way do not hold morning or evening colors, as the ensign usually is flown day and night. Just as the ship gets under way, the ensign is shifted from its in-port position on the stern to its at-sea position at the mainmast. This is called shifting the colors.

HALF-MASTING THE ENSIGN

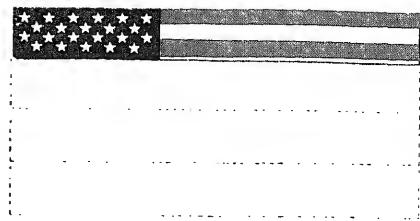
National flags flown at half-mast, or half-staff ashore, are an internationally recognized symbol of mourning. The United States honors its war dead on Memorial Day by half-masting the flag from 0800 until the last gun of a 21-minute-guns salute that begins at noon (until 1220 if no gun salute is rendered).

Normally, the flag is half-masted on receiving information of the death of one of the officials or officers listed in *U.S. Navy Regulations*. Notification may be received through news media reports or by an official message.

In half-masting an ensign already flying at the peak or truck aboard ships under way, lower it ceremoniously to half-mast. If the ensign is not flying, hoist it smartly to the peak or truck before lowering it to half-mast. In lowering a half-masted ensign, raise it first to the peak or truck, then lower it ceremoniously.

When the national anthem, "To the Colors," or "Retreat" is played at morning or evening colors aboard ships not under way, all hands should hold the salute during the raising or lowering of the flag. Thus, in half-masting during morning colors, "Carry on" should not be sounded until the flag is lowered to half-mast. At evening colors, "Attention" is sounded and the salute rendered before raising the flag to the top of the flagstaff from its half-mast position.

If the ensign is flown from the flagstaff and is half-masted, the union jack also is half-masted. Distinctive marks, such as commission or command



A. To fold the flag correctly bring the striped half up over the blue field; then fold again.

B. Bring the lower striped corner to the upper edge, forming a triangle. The outer point is turned inward on the upper edge to form a second triangle.



B



C. Continue to fold the flag in triangles until the entire length of the flag is folded.

D. When the flag is completely folded only the blue field should be visible, and it should have the triangular shape of a cocked hat.



C



D

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Figure 4-7.—Folding the ensign.

pennants, are not half-masted except when the ship's commanding officer or the unit commander dies.

A special ceremony calling for half-masting the ensign is required of ships passing Washington's tomb between sunrise and sunset. A full guard and band are paraded (if aboard), the ship's bell is tolled, and the ensign is half-masted as the ship comes in sight of Mount Vernon, Virginia. When the ship is opposite the tomb, the guard and all persons on deck face the tomb and salute. When the bugler begins to sound taps, the ensign is raised to the peak; tolling of the bell ceases on the last note of taps. The band then plays the national anthem, followed by the command to "Carry on."

You may have the duty of raising or lowering the ensign at some time in your career. You should remember that the ensign is raised smartly but lowered

ceremoniously. After the ensign is lowered, it is folded properly and placed in safe keeping until morning colors. Figure 4-7 shows the correct way to fold the ensign. The union jack is folded and handled in the same manner as the national ensign.

NATIONAL ANTHEM AND FLAG HONORS

Honors to the ensign or national anthem are rendered also on occasions other than at colors. Procedures are described here for rendering honors when the anthem is played indoors and outdoors, with or without the flag present. Foreign anthems and ensigns are shown the same mark of respect as our own anthem and ensign. All salutes are held from the first note of the anthem to the last.

All the following rules for saluting the national anthem apply only when you hear it played as part of a public ceremony at which you are present. If you hear a broadcast or recording of the anthem on a radio, phonograph, or television or as you pass a store, you need not stop or salute.

Indoors

If the flag is NOT displayed when the anthem is played inside a building, you stand at attention facing the source of the music. If you are in uniform and covered, you render the hand salute; if not covered, you stand at attention. If you are in civilian clothes, render the hand-over-the-heart salute. If the flag is displayed when the anthem is played, you face the flag and stand at attention. If in uniform and covered, render the hand salute; if in civilian clothes or if in uniform and uncovered, you place your right hand over your heart. Persons in formation stand at attention, and those in charge of the formation salute.

Outdoors

With some exceptions, saluting procedures when the anthem is played outdoors (with or without the flag displayed) are much the same as when indoors. Marching formations are halted at attention, and the person in charge faces and salutes the flag or music, as appropriate.

Personnel in boats, whether in uniform or in civilian clothes, do not salute during the playing of the anthem. Only the boat officer (or coxswain if there is no boat officer) will stand and salute; all other personnel remain seated at attention.

You are not likely to hear "The Star Spangled Banner" played in a parade, but most marching units do carry the national ensign. The rules for saluting the flag passing in parade are simple: come to attention, face the flag, and salute. (If you are in a vehicle, remain seated at attention.)

The musical selection "Hail to the Chief" is performed to honor the President of the United States. When "Hail to the Chief" is so played, you render the same honors as are accorded during the playing of the national anthem; that is, stand at attention and salute.

BOARDING AND LEAVING A NAVAL VESSEL

You cannot just walk on and off a ship as you would enter and leave your home; you must follow certain procedures.

When boarding ANY ship when you are in uniform and the national ensign is flying, you halt at the gangway, face aft, and salute the ensign. You then turn to the OOD and salute. If you are returning to your own ship, you say, "I request permission to come aboard, sir/ma'am." The OOD returns both salutes and says, "Very well" or a similar expression.

When you salute the OOD in boarding a ship other than your own, you say, "I request permission to come aboard, sir/ma'am." You should then add the purpose of your visit: "to visit a friend" or "to go to small stores."

When you leave a ship, the order of saluting is reversed. You salute the OOD first and say, "I request permission to leave the ship, sir/ma'am." After receiving permission, you then face and salute the ensign (if it is flying) and depart. If you are not in the liberty uniform, state your reason for wanting to leave the ship: "I request permission to go on the pier to check the mooring lines, sir/ma'am."

When boarding a ship in civilian attire and the national ensign is flying, you will halt at the gangway, at attention, and face aft. You then turn to the OOD—at attention. If you are returning to your own ship, you say, "I request permission to come aboard, sir/ma'am." The OOD salutes and says, "Very well" or a similar expression.

When you board a ship other than your own, you say, "I request permission to come aboard, sir/ma'am." You should then add the purpose of your visit. The OOD will then say, "Permission granted" or "Permission not granted."

When you are leaving a ship in civilian attire, the procedure is reversed. You stand at attention in front of the OOD first and say, "I request permission to leave the ship, sir/ma'am." After receiving permission, you then stand at attention facing the ensign (if it is flying) and depart.

Sometimes it is necessary for destroyers, submarines, and other ships to tie up in nests alongside a repair ship, tender, or pier. In this case, you may have to cross several ships to go ashore or return to your own ship. When you have to cross one or more ships to reach the pier, to reach another ship, or to return to your own ship, you should use the following procedure: Upon boarding a ship that you must cross, salute the colors (if flying), then turn toward and salute the OOD, and request permission to cross. After receiving permission, proceed to cross without delay. When you depart that ship, it is not necessary to salute the colors or OOD again. Repeat this crossing procedure until you reach your destination.

On many ships, particularly those of destroyer size and smaller, there may be a first-class or chief petty officer instead of an officer on the quarterdeck. Although you do not salute enlisted personnel, you must salute an enlisted person who is the OOD, because you are saluting the position and authority represented—not the individual. If you are part of a working party that will be using the quarterdeck when loading supplies, you normally salute only when first leaving the ship.

MILITARY ETIQUETTE

The rules of behavior to be observed by Navy personnel at certain times, in specified places, and on certain occasions are described in this section. "Behavior," in this case, means social conduct rather than strict military behavior, though the two sometimes are related.

For passing through doorways, let the senior go first; if possible, hold the door for him or her. On meeting an officer in a passageway, step aside so the officer may pass. If other enlisted persons and/or junior officers are present, call out "Gangway" so everyone can make way for the senior officer.

Juniors should show respect to seniors at all times by recognizing their presence and by being courteous and respectful in speech and manner. Juniors take the leftmost seat in a vehicle and walk on the left side of seniors whom they are accompanying.

ABOARD SHIP

When divine services are held on board ship, the following word is passed: "Divine services are being held in (such and such a space). The smoking lamp is out. Knock off all games and unnecessary work. Maintain quiet about the decks during divine services."

If you enter the area where divine services are being held, you must uncover even though you are on watch and wearing a duty belt. (Remain covered during Jewish ceremonies.)

Another area in which special rules apply is the quarterdeck. The quarterdeck is not a specific deck; it is an area designated by the commanding officer to serve as the focal point for official and ceremonial functions. The quarterdeck, consequently, is treated as a "sacred" part of the ship; and you should obey the following rules:

1. Do not be loud or sloppy in its vicinity.
2. Never appear on the quarterdeck unless you are in complete uniform.
3. Never smoke or have coffee cups and soda cans or bottles on the quarterdeck.
4. Never cross or walk on the quarterdeck except when necessary.
5. Do not lounge on or in the vicinity of the quarterdeck.
6. When on the quarterdeck, salute whenever the quarterdeck watch salutes (as during a gun salute).

Shore stations, as well as ships, have areas designated as the quarterdeck. The same rules apply in all cases.

A messing compartment is where enlisted personnel eat; the wardroom is where officers eat. If you enter any of these areas while a meal is in progress, you must uncover.

Officers' country is the part of the ship where officers have their staterooms and wardrooms; CPO country is where the chief petty officers have their living spaces and mess. You must avoid entering these areas except on official business. Never use their passageways as thoroughfares or shortcuts. If you enter the wardroom or any compartment or office of an officer or CPO, you must remove your hat, unless you are on watch and wearing the duty belt. Always knock before entering an officer's or chief petty officer's room.

The basic rule in Navy etiquette, as in civilian etiquette, is to make way for a senior. Thus, the rule for entering boats, airplanes, and vehicles is seniors in last and out first. (Enlisted personnel board a boat first, leaving room, of course, for officers.) The reason is that the captain should not have to wait in a boat for a less senior person to amble down the accommodation ladder. When the destination is reached, the senior is allowed to disembark first as a mark of respect from juniors.

In general, seniors take the seats farthest aft. If officers are present, enlisted personnel should not sit in the stern sheets unless invited to do so. Enlisted personnel maintain silence as long as officers are in the boat. (For reasons of safety, personnel should never become noisy or boisterous in a boat regardless of the hour, condition of the sea, or who is present.)

The boat coxswain salutes all officers entering or leaving the boat. Enlisted personnel seated well forward do not rise when officers enter or leave the stern sheets. Personnel in the after section, however, rise and salute when an officer enters or leaves. (Although it is customary to stand when saluting, this formality is dispensed with if the safety of the boat crew would be endangered.) When boat awnings are spread, enlisted personnel remain seated at attention while saluting; they do not rise under these circumstances.

A boat assumes rank according to the rank of the highest grade officer embarked in the boat. The coxswain and senior officer in each boat salute, with the person in the junior boat saluting first. Other crew members stand at attention; passengers sit at attention. The rules of etiquette for personnel aboard airplanes and other vehicles are the same as for boats.

Boats passing a ship during colors must lie to, or proceed at the slowest safe speed. The boat officer, or in his or her absence, the coxswain, stands (if safe to do so) and salutes. Other persons in the boat remain seated or standing, but do not salute.

ADDRESSING AND INTRODUCING NAVAL PERSONNEL

Customs, tradition, and social change determine the form of verbal address of introduction of members of the naval service. Although tradition and military customs generally hold true, there are some differences in methods of addressing and introducing military personnel, depending on whether you are in civilian or military circles at the time.

The proper terms of addressing and introducing naval personnel are summarized in table 4-1. Except as provided in the paragraphs that follow, all officers in the naval service are addressed or introduced with the titles of their grades preceding their surnames.

Officers of the Medical or Dental Corps, and officers of the Medical Service Corps having a doctoral degree, may be addressed as "doctor." Likewise, an officer of the Chaplain Corps may be addressed as "chaplain." However, if a doctor or chaplain prefers to be addressed by the title of his or her grade, such preference should be honored. When you are addressing an officer whose grade includes a modifier (for example, lieutenant commander), the modifier (lieutenant) may be dropped.

As a general rule, use the officer's title and name. It is better to say, "Yes, Ensign Smith"; "No, Doctor Brown"; or "Yes, Lieutenant Jones"; than to say, "Yes, sir" or "No, ma'am." However, in prolonged conversation where repetition would seem forced or awkward, the shorter "sir" or "ma'am" is used more often.

Aboard ship, the regularly assigned commanding officer is addressed as "captain" regardless of grade. The regularly assigned executive officer (if of the grade of commander) may be addressed as "commander" without adding the name. In some ships it is customary to address the executive officer as "commander" even though the grade is that of lieutenant commander.

Naval officers are introduced to civilians by title, and the method of introduction should give a clue as to how the person should be addressed from then on. You might say, "This is Lieutenant Jones. Mr. Jones is a shipmate of mine." This serves a double purpose; it gives the civilian to whom you are introducing the officer knowledge of the naval person's grade, and it also gives the correct method of address, "Mr. Jones."

Military and civilian practices differ in the introducing and addressing of enlisted personnel. Under military conditions, petty officers are addressed and introduced by their respective title followed by their last name. Petty officers in paygrades E-7, E-8, and E-9 are introduced and addressed as "Chief _____," prefixed by "Senior" or "Master," if appropriate. Petty officers in paygrades E-4 through E-6 are addressed and introduced as "Petty Officer _____." Persons in paygrades E-3 and below are addressed by their last names only in informal situations. However, in the formal situation or introductions, their last names are

or above	(or appropriate rank) SMITH	(or appropriate rank) SMITH	(or appropriate rank) SMITH	(or appropriate rank) SMITH
LIEUTENANT COMMANDER or below	LIEUTENANT COMMANDER (or appropriate rank) SMITH	COMMANDER ² SMITH	LIEUTENANT COMMANDER ³ SMITH	MR. (Mrs., Miss, Ms.) SMITH
MEDICAL and/or DENTAL CORPS OFFICER	DR. SMITH ⁴	DR. SMITH ⁴	LIEUTENANT SMITH OF THE NAVY MEDICAL CORPS	DR. SMITH ⁴
CHAPLAIN CORPS OFFICER	CHAPLAIN SMITH	CHAPLAIN SMITH	CHAPLAIN SMITH	CHAPLAIN
NAVY NURSE CORPS OFFICER	COMMANDER (or appropriate rank) SMITH	COMMANDER SMITH	COMMANDER SMITH OF THE NAVY NURSE CORPS	COMMANDER (Mr., Mrs., Miss, Ms.) SMITH
CHIEF WARRANT OFFICER	CHIEF WARRANT OFFICER SMITH	CHIEF WARRANT OFFICER SMITH	CHIEF WARRANT OFFICER SMITH	MR. (Mrs., Miss, Ms.) SMITH
MIDSHIPMAN	MIDSHIPMAN SMITH	MIDSHIPMAN SMITH	MIDSHIPMAN SMITH	MR. (Miss, Ms.) SMITH
CHIEF PETTY OFFICER	CHIEF ⁵ SMITH	CHIEF or CHIEF SMITH ⁵	CHIEF YEOMAN ⁵ SMITH	MR. (Mrs., Miss, Ms.) SMITH
AVIATION CADET	AVIATION CADET SMITH	MR. SMITH	AVIATION CADET SMITH	MR. (Mrs., Miss, Ms.) SMITH
PETTY OFFICER	PETTY OFFICER SMITH	PETTY OFFICER SMITH	PETTY OFFICER SMITH	MR. (Mrs., Miss, Ms.) SMITH
SEAMAN	SEAMAN SMITH	SMITH	SEAMAN SMITH	MR. (Mrs., Miss, Ms.) SMITH

1. When not in uniform a captain or lieutenant would be introduced as "of the Navy" to distinguish the grade from the other services.
2. When addressing an officer whose grade includes a modifier (i.e. lieutenant commander) the modifier may be dropped.
3. A suggested form of introduction is: "This is LCDR Smith. Mr. (Mrs., Miss, Ms.) Smith is now stationed here." This indicates both (a) the officer's grade and (b) the form of address.
4. If a senior officer of the Medical or Dental Corps prefers to be addressed by title, such preference should be honored.
5. Prefixed by "Senior" or "Master" as appropriate.

preceded by "Seaman," "Fireman," "Airman," and so forth, as appropriate.

Civilians sometimes feel uncomfortable in social gatherings when addressing enlisted personnel as described in the preceding paragraph. It is customary, therefore, for those outside the service to extend to enlisted personnel the same courtesies they would extend to them in civilian life and to prefix their names

with "Mr.," "Mrs.," "Miss," or "Ms.," as the case may be. In introducing them, one should give their titles and names, then the mode of address: "This is Petty Officer Smith. Mr. Smith will be visiting us for a while. Thereafter, he will be addressed as "Mr. Smith."

In civilian life you are supposed to introduce men to women and youth to age; that is, a young man to a girl or a girl to an older woman. If the person is a mal-

member of the clergy, however, you introduce women of any age to him; or, if a man is aged or distinguished, you introduce the woman to him—particularly if she is young.

The same general rules are followed in military life, except that in most instances, naval rank establishes the order of introduction. Thus, you introduce the junior to the senior, whether male or female. An exception is that you always introduce others, regardless of the rank or sex, to a chaplain. If one of the persons is a civilian, you follow the rules of youth to age and male to female.

The only proper response to an oral order is "Aye, aye, sir/ma'am." This reply means more than yes. It indicates "I understand and will obey." Such responses to an order as "O.K., sir" or "All right, sir" are taboo. "Very well" is proper when spoken by a senior in acknowledgement of a report made by a junior, but a junior never says "Very well" to a senior.

"Sir" or "Ma'am" should be used as a prefix to an official report, statement, or question addressed to a senior. It should also be used when addressing an official on duty representing a senior. For example, the OOD, regardless of grade, represents the commanding officer and should be addressed as "Sir" or "Ma'am."

If you are a junior addressing a senior, you should introduce yourself unless you are certain the senior knows you by sight.

SUMMARY

Customs and courtesies play an integral part of the seafarer's life. Through them, we show respect for each other and for certain symbols or objects, such as the American flag. When we address the commanding officer as *captain*, even though he or she holds the rank of commander, we are using a time-honored custom of respect for the person in command.

The courtesy of the salute is not only the required recognition of a senior but also the expression of mutual respect and pride in service. The courtesy of rendering honors to the Arizona Memorial and Washington's tomb is a sign of respect. The custom of officer personnel boarding ships' boats after enlisted personnel is another sign of respect. The customs and courtesies of removing your hat indoors or in the presence of a lady, of rendering honors to the national ensign, and of playing the national anthem at morning and evening colors are also signs of respect. Our customs and courtesies will continue to be a part of our daily routine as long as we maintain pride and respect in our Nation, our service, and ourselves.

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CHAPTER 5

LEADERSHIP

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe the concept of followership and leadership.
2. Identify how to give commands and orders.
3. Explain ways to improve command morale.

To lead, you must first be able to follow; for without followers, there can be no leader

— Navy Saying

Today's Navy operates with fewer people and resources than ever before. That makes the task of good leadership more important than ever. You may think since you are nonrated, leadership does not apply to you. Not true! You must begin to learn as much as you can about leadership, because your leadership skills will have a strong impact on both your Navy career and your personal life. Whether you are an apprentice, a chief petty officer, a division officer, or a commanding officer, you will assume responsibility and exercise authority within the chain of command. As you advance to higher rates, you will assume more authority and responsibility as a leader. Now is the time to learn what leadership is all about.

LEADERSHIP

The Navy defines leadership as the art of influencing people to progress towards the accomplishment of a specific goal.

Leadership occurs when one person influences other people to work toward a definite goal.

BASIC PRINCIPLES OF LEADERSHIP

Effective leadership is based on personal example, good management practices, and moral responsibility. Every person in the Navy must set an example of military ideals and give personal attention and

supervision to those persons below them in the chain of command

To determine your leadership ability, examine your conduct, review your duties and responsibilities, and determine how well you are performing. If you do not measure up to Navy standards, take steps to raise your performance level as well as the performance level of the personnel who work for you.

ELEMENTS OF LEADERSHIP

You have probably heard the expression "leaders are born, not made" or "that person is a born leader." Forget those phrases; no one is "a born leader." Many people are "natural" leaders because they have a strong, magnetic personality or a natural ability to learn rapidly. However, those people are the exception rather than the rule. Because leaders are not "born," they must be trained. Three elements make an effective Navy leader:

1. Moral principles
2. Personal example
3. Administrative ability

Moral Principles

When we speak of moral principles, we think of honesty, integrity, and loyalty. Those positive standards of human conduct provide direction, solidity, and consistency to leadership.

The key to leadership is the emphasis you place on personal moral responsibility. Show personal moral responsibility by being honest and loyal. Your shipmates interpret those traits to mean you have strong moral

character, and a strong moral character influences others in a positive manner.

Personal Example

Leading by personal example goes hand in hand with moral principles. Effective leaders have many different leadership traits, such as know-how, sincerity, and courage. Which of these traits is the most important is a matter of opinion. However, if you show weakness in any trait a worker thinks of as important, you may lose that person's respect.

You don't automatically receive respect as a leader because you have authority. You must earn the respect and confidence of personnel under you by setting a good example. Lead your workers; don't drive them.

Administrative Ability

Administrative ability is more than the ability to maintain logs, records, and other paper work. Administrative ability is another term for good management practices. Those practices include the ability to organize, manage, and work with people. Learn to apply a personal touch in dealing with each of your workers. Always remember, every person wants to be treated as an individual who has worth. Emphasize each person's importance in getting the job done.

FOLLOWERSHIP

Everyone in the Navy is in a position of followership. No matter how high you may go in the chain of command, you must still report to someone else above you. Even the President, as Commander in Chief of the armed forces, must report to the people of the United States. Therefore, to be a good leader, you must know how to be a good follower. Always carry out your orders promptly, to the best of your ability, and as cheerfully as possible. Show your workers that even if an order is disagreeable or causes personal inconvenience, you still must carry it out. Loyalty, both up and down the chain of command, is essential to effective leadership.

Commands and Orders

A good follower obeys all orders received from personnel higher in the chain of command. The Navy expects two kinds of obedience: immediate and reasoned.

Immediate obedience is an automatic response to a COMMAND. You must follow a command immediately and exactly as given without asking questions. For example, if you received an order to make a turn while steering your ship, you would do so immediately. If you did not respond at once, you could endanger the ship.

Reasoned obedience is the proper response to an ORDER. An order allows you to ask questions if you do not understand; you can use your own judgment in carrying out the order. If your leading petty officer tells you to paint your living space, for example, you decide the number of brush strokes to use. Reasoned obedience allows you to obey an order while learning from your experience in carrying it out.

Followership Qualities

To be a good follower, try to develop the following qualities:

Loyalty—Always be loyal to the personnel above you in the chain of command, whether or not you agree with them.

Initiative—Do what must be done without waiting to be told. Showing initiative demonstrates your ability to be a leader.

Dependability—Be dependable. The person in charge must have help in carrying out the mission. The leader must be able to depend on the followers to get the job done. Dependable followers increase the efficiency of the leader and the command.

GIVING ORDERS

When you are the leader of a group, part of your job is to give orders. Give orders that are simple, clear, and complete; ensure everyone understands what must be done.

A good order makes the following facts clear:

- What is to be done.
- When to do it.

Then as circumstances require or permit, you may want to add the following information:

- How to do it.
- Why it must be done.

How you give an order is important. With experience and when you closely follow the rules for

giving an order, you will develop an effective technique for giving orders. The way you speak is also important. The secret of giving orders is to speak in a tone that shows you mean business. When you act as though you expect the job to be done well, it usually will be.

PRAISE AND REPRIMAND

Learn when to praise and when to reprimand. Your people will do better work when they know you appreciate their efforts. Tell your people you appreciate their work; that is the only way they will know. When a person does more than required, show your approval; if possible, show your approval in front of the other personnel.

At times you will have to reprimand. You may not like to do that, but warning and reprimanding are part of your responsibilities as a leader. Remember, the purpose of a reprimand is to teach, not to embarrass. Therefore, give reprimands in private. Always be sure of your facts—the person may have a reason for the behavior that led to the reprimand. Tell the person what was wrong and why—then explain how the person can improve.

Remember to do the following:

- Praise in public.
- Reprimand in private.

PROMOTING MORALE

Morale has a different meaning to different people. If you ask your shipmates about their morale, you will receive many different answers. For instance, a person who has just been promoted will tell you morale is high. On the other hand, a person who has just been restricted will tell you morale is low. Many elements affect a person's morale.

Keeping high morale among Navy personnel helps to accomplish the Navy's mission. Because the Navy realizes the need for high morale, it conducts several ongoing programs to meet that need. All of those programs are designed to help maintain a high level of morale. They include moral and spiritual guidance, educational opportunities, and personal affairs counseling. Encourage your shipmates to take advantage of available programs.

Organized recreation programs, such as ball games, organizational parties, picnics, and sightseeing tours, also contribute to good morale because they bring members of the organization together. Let your people know about all of your organization's recreational

programs and activities. Showing an interest in the welfare and morale of your people will keep morale high.

Pride

Many organizations in the Navy have an outstanding reputation for their professional ability and their ability to get the job done. Other outfits can't seem to do anything right. What makes the difference? The answer is simple. The winning outfit has *esprit de corps*—the members of the unit have pride in their organization and pride in themselves as individuals.

You can help your outfit be a winner. Show your pride in the Navy and your leaders. Wear your uniform proudly. Compliment personnel working for you on their sharp appearance and good work. Those are some of the ways you can help your organization become an efficient, tightly knit crew.

Keep Personnel Informed

Another way for you to boost morale and help promote *esprit de corps* is to keep your personnel informed. We all like to know what is going on. When will the ship get under way? What is the workload for tomorrow? When will the squadron deploy? Those are the types of day-to-day information you can pass on to your personnel. Let them know about upcoming drills. Explain the reasons for drills. Letting people know what they can expect promotes good morale.

Integrity

Always be honest with your superiors, your shipmates, and yourself. Make promises only when you can keep them and only when you intend to keep them. Keeping promises earns you respect from your shipmates. You must have that respect to be an effective leader.

SUMMARY

Leadership is the ability to mold the members of a unit into a team that can successfully accomplish the unit's mission. Becoming a successful leader is a challenge. You will always face changes in operations or scheduled evolutions that have an impact on a unit's time. Watch your supervisors during those times; see how they respond to a change of plans in midstream. A good leader will take a few minutes to collect his or her thoughts and then make a plan to offset the change.

The leadership skills you develop now will help you when the time comes for you to assume your responsibilities as a leader. The more you learn now about being a good leader, the easier your job will be in the future.

Get to know your personnel and their individual traits, talents, and needs. Be aware of your influence on other people. Make sure your conduct reflects the traditional Navy values of honesty, trust, and respect. Be

strong; positive; and above all, fair in dealing with other people.

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Military Requirements for Petty Officer Third Class,
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CHAPTER 6

MILITARY CONDUCT AND JUSTICE

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Explain the contents of the responsibilities of articles I through VI of the Code of Conduct.
2. Define the authority and function of the military police.
3. State the purpose of good order and military discipline.
4. Describe the general content of chapters 8 and 11 of *Navy Regulations*.
5. Summarize the general content of the required articles of the *Uniform Code of Military Justice*.
6. Recognize the types and composition of courts-martial.
7. State the purpose of the report and disposition of offense.

Because the United States Navy is a military service, and since you are a member of the U.S. Navy, you are expected to be *military* in the best sense of the term. You are expected to know the traditions of the Navy, its customs, and its language. You should understand the organization and mission of the Navy and the "why" behind the Navy's discipline and its drills. In the front of this book is the Navy Creed; if you haven't read it, read it now. You will see the importance of your responsibilities and duties to your Country and to the Navy.

In earlier chapters, you learned something about the organization and mission of the Navy. In this chapter, you will gain insight on military conduct, which includes the conduct expected of you if you should become a prisoner of war. You will also learn about the military police, the purpose of discipline and punishment, and the three sources that set forth the basic disciplinary laws for the U.S. Navy. Those sources are *U.S. Navy Regulations*, *Standard Organization and Regulations of the U.S. Navy*, and the *Uniform Code of Military Justice (UCMJ)*.

PERSONAL CONDUCT

Every person in the Navy should set examples of high personal and military ideals. Always set a good example for other, perhaps younger, nonrated personnel.

Remember, a good sailor always does the following:

- Acts in a military and seamanlike manner
- Puts the good of the ship and the Navy before personal likes and dislikes
- Obeys the rules of military courtesy and etiquette as well as the rules of military law
- Demonstrates loyalty, self-control, honesty, and truthfulness
- Knows what to do in an emergency and how to do it with the least waste of time and with minimum confusion

As a sailor, you represent the Navy. People form their opinions of the Navy based on your appearance and actions. Always wear your uniform with pride. Conduct yourself in a manner that will reflect credit on you and the Navy. In effect, you conduct the business of public relations for the Navy. The manner in which you sell the Navy to civilians and the way you sell yourself to your superiors and shipmates determines their opinion of you and of the Navy.

One of the important characteristics of a good sailor is the possession of a sense of moral responsibility. That means you know what is right and what is wrong, and you try to do what is right. As a morally responsible person, you perform all assigned duties as correctly and

timely as humanly possible without worrying about personal gain or inconveniences.

To succeed in any line of work, you must have a devotion to duty and the ability to take orders. Shipboard life is so exacting that a team of members must do many tasks; one person alone cannot do them. In battle or in solving a battle problem, all personnel must work as a team; whether the team consists of a few or many members makes no difference.

The Navy is not the place for the immature self-seeker who puts forth his or her best efforts only when some personal advantage is to be gained. Nor does the Navy have room for the resentful, hardheaded, self-important person who cannot take an order. Rules and regulations serve as guides for daily living and, if followed by all, make life more pleasant and easier for all hands.

THE CODE OF CONDUCT

Because of the conduct of a few Americans during the Korean conflict, President Dwight D. Eisenhower prescribed a Code of Conduct for members of the armed forces in 1955. That code provides American military personnel with a standard of conduct should they be captured by an enemy. It provides a framework of ideals and ethical standards that will help personnel resist the physical, mental, and moral onslaughts of their captor.

Many Americans have been prisoners of war, and they all agree that life as a POW is a hard one. A few POWs were unprepared or lacked the ability to maintain their faith and loyalty under extreme pressure. They gave in to the enemy's efforts to break their will so that they would give information or act in a way that was detrimental to their country and fellow prisoners. Should you ever become a POW, don't make up stories; your interrogator will eventually catch on and could resort to harsher methods to try to gain information. A simpler, "I don't know," will usually suffice. Your captors will try numerous methods to gain information. They will try to get prisoners to collaborate by torturing them or by trying to turn prisoners against each other. Although physical and mental forms of torture are forbidden by the Geneva Convention, history has shown that some captors have resorted to those methods to get the information they want. Maintain your faith in your God, your country, and your fellow prisoners.

Remember the first sentence of the first article of the Code of Conduct, "I am an American, fighting for freedom . . ." If you live up to that principle, you need never worry about an investigation concerning your

behavior. You will not live the rest of your life knowing something you said caused your fellow prisoners, comrades in arms, or your Country and its allies harm.

In 1988 President Ronald Reagan issued Executive Order 12633, amending the Code of Conduct to use gender-neutral language. First expressed in written form in 1955, the code is based on time-honored concepts and tradition that date back to the days of the American Revolution. The six articles of the Code of Conduct are as follows:

ARTICLE I

I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.

ARTICLE II

I will never surrender of my own free will. If in command I will never surrender the members of my command while they still have the means to resist.

ARTICLE III

If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

ARTICLE IV

If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me and will back them up in every way.

ARTICLE V

When questioned, should I become a prisoner of war, I am required to give name, rank, service number and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.

ARTICLE VI

I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which

made my country free. I will trust in my God and in the United States of America.

MILITARY POLICE

All branches of the armed forces assign personnel to duties as military police. In the Air Force, they are called security police; in the Army and Marine Corps, they are called military police (MP); and in the Navy, they are called shore patrol (SP). The shore patrol consists of officers and petty officers assigned to assist military personnel ashore. They are identified by armbands bearing the letters *SP*.

In areas where units of different armed services are located, the military police may be combined to form one unit instead of a separate unit for each service. This single unit is known as an Armed Forces Police Detachment (AFPD), and all members are identified by brassards (armbands) with the letters *AFPD*. The primary duties of these military police are to render assistance to military personnel ashore, maintain good order and discipline among military personnel, and report conditions or practices that appear prejudicial to the welfare of military personnel. They have authority to stop, question, apprehend, or take into custody any member of the armed forces.

When asked to do so by the military police, you must show your ID card, leave authorization, and the like. You must obey any orders given you by the military police.

Some reminders are listed here for you to observe in any dealings with the military police or shore patrol. (For the remainder of our discussion, *patrol* is used to include all armed forces police.)

1. Obey the orders of the patrol.
2. Do not become argumentative if the patrol is questioning you. The patrol will rightfully question you if you are out of uniform, appear drunk, or act in a suspicious manner.
3. Never interfere with the members of the patrol in the performance of their duty. If you are in a place where a fight has begun or is about to develop and the patrol orders you to leave, do so without protest.

Do not feel that the patrol is trying to harass you. You will not have to prove who you are or verify that you are entitled to be ashore every time you see a patrol. The patrol will stop you only when you appear to be in, or to be headed for, some kind of trouble or if you arouse their suspicions in some other manner. The military

patrol can be a real friend in time of need. The patrol's orders are to be courteous, fair, and reasonable in all dealings with members of the armed forces and with civilians.

Whenever you are away from your ship or station and need advice, direction, or help of any kind, call on the nearest military patrolman or patrol headquarters.

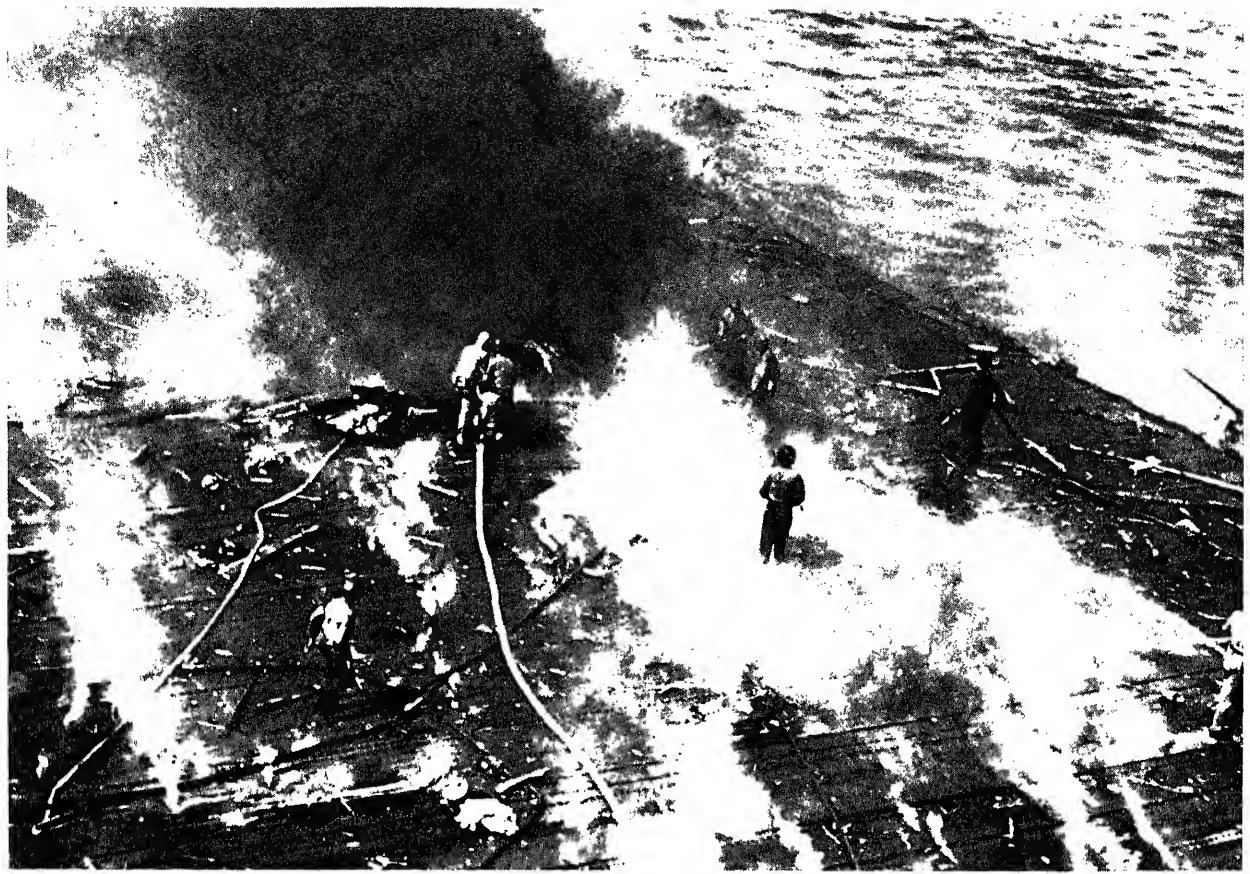
Aboard ships and stations, masters-at-arms and police petty officers have functions similar to those of the shore patrol. The master-at-arms (MAA) force, headed by the chief master-at-arms (CMAA), works directly for the executive officer. It enforces Navy and ship regulations, musters restricted personnel, holds reveille, and performs such other duties as are required for the maintenance of good order and discipline.

The duties of police petty officers (PPOs) are about the same as those of MAAs, but are on a divisional, instead of a shipwide, basis. Although PPOs stand their regular watches and perform their normal duties, within their divisions they are assigned additional duties such as making reveille and taps, ensuring compartments are cleaned, and maintaining order. At times they may assist the MAA force in such functions as overseeing pay lines, searching the ship, and providing bunks for new personnel or passengers.

PURPOSE OF DISCIPLINE

The word *discipline* comes from a Latin word meaning "to teach." But discipline involves a certain type of teaching. Discipline is not peculiar to military organizations. Discipline is the training that develops self-control, character, and efficiency, or is the result of such training. Discipline, rightly viewed, is a character builder rather than a destroyer of individuality.

The Navy's discipline consists of training its men and women to behave in certain ways under certain circumstances. It enables them to work as a unit with maximum efficiency. To encourage them toward this end, the Navy uses a system of motivation and correction through reward and punishment. Studious Navy men and women, when recommended by their commanding officers, are rewarded by timely promotions; lazy or careless individuals suffer a self-inflicted punishment by missing out on those promotions. Those who get into trouble because they are negligent or indifferent are punished by fines, restriction, confinement, demotion, and other forms of disciplinary action.



134.42

Figure 6-1.—The results of discipline are shown in prompt and correct action in an emergency, and especially in battle efficiency.

The signs of discipline are shown in smart salutes, proper wearing of the uniform, prompt and correct action in any emergency, and in battle efficiency that brings victory in wars (fig. 6-1). Discipline, obviously, is indispensable to a military organization. Without it almost any effort would be defeated by lack of organization.

The purpose of discipline in the military services is to bring about an efficient military organization—a body of human beings trained and controlled for concerted action for the attainment of a common goal. Each individual understands how to fit into the organization as a whole. The members understand one another through the sharing of common knowledge. They are bound together by a unity of will and interest expressed by their willingness to follow and obey their leader. A group so organized is effective, not only for the specific purpose intended, but also for an emergency. Thus, a gun crew may be readily converted into a repair party for carrying out any essential job within its capabilities; a company of midshipmen may be turned into a fire-fighting organization. A well-disciplined naval unit

responds automatically to an emergency and is not subject to panic.

PUNISHMENT

Based on the Navy's concept, punishment is not personal; it is not vindictive; nor is it inflicted as revenge for misconduct. The Navy realizes punishment cannot right the wrong resulting from an act of dereliction. The Navy considers that the value of punishment lies in the object lesson it furnishes the wrongdoer and others—that the offense must not be repeated. That concept is referred to as the deterrent theory of punishment.

To accomplish its purpose, punishment must be consistent and just and must be recognized as such by the recipients and their shipmates. Punishment should neither be of such a nature that it lowers self-esteem, nor should it be so severe that it is out of proportion to the offense.

Recipients of Navy punishment should keep two facts in mind. First, personnel are punished only as a

MANUAL
FOR
COURTS-MARTIAL
UNITED STATES

OPNAVINST 3120.32



STANDARD ORGANIZATION
AND REGULATIONS
OF THE U.S. NAVY

UNITED STATES
NAVY
REGULATIONS

— 1990 —



DEPARTMENT OF THE NAVY
WASHINGTON, D.C.

Figure 6-2.—Three official sources for basic disciplinary laws.

result of their misbehavior. Second, they will not be punished again if they learn to conform to Navy standards of conduct.

The administration of punishment is not personal; therefore, those who administer it should be shown no malice. They are carrying out their duties as required by *Navy Regulations*.

REGULATIONS THAT GOVERN THE
U.S. NAVY

Figure 6-2 shows the three official sources that set forth the basic disciplinary laws for the Navy. These sources are the *Uniform Code of Military Justice (UCMJ)* (contained in the *Manual for Courts-Martial United States, 1984 (Revised Edition)*), *United States*

Navy Regulations (commonly called *Navy Regs*), and the *Standard Organization and Regulations of the U.S. Navy*.

You probably have heard the saying: "Ignorance of the law is no excuse." Obviously, this idea must govern; otherwise, personnel could excuse their misconduct merely by saying they did not know there was a law against it. When you entered the Navy, you agreed to abide by the Navy's laws and regulations. Naturally, you need some time to learn all the rules you must obey. However, you should make every effort to learn them as soon as possible to avoid embarrassing situations.

U.S. NAVY REGULATIONS

The articles published in *United States Navy Regulations* describe the principal parts of the Department of the Navy. They also describe the duties, authority, and responsibilities of some of the offices within the Department of the Navy, such as the Secretary of the Navy, the Chief of Naval Operations, and the commanding officer. *Navy Regs* is where you will find the regulations concerning honors and ceremonies given to civilian and military officials of the United States and foreign governments. Chapter 10 is also of interest to you because it outlines some of the regulations that affect your responsibilities when carrying out orders and, under certain circumstances, your authority when carrying out these orders. Chapter 11 is probably the most important to you as a member of the Navy; it describes the rights and responsibilities of all members of the Navy.

Many of the articles contained in chapters 10 and 11 have been explained in the text of this manual without reference to the regulations. As you become more familiar with the regulations that govern the Navy, you can see that they are written to protect you and provide guidance that affects your day-to-day routine. Each ship and station has complete copies of *Navy Regs*, which are available to all personnel.

The Chief of Naval Operations is responsible for ensuring that *Navy Regulations* conforms to the current needs of the Department of the Navy.

Navy Regulations and changes to it are issued by the Secretary of the Navy after being approved by the President.

Summaries and Excerpts from *Navy Regulations*

This section lists articles (with a condensation of their text, if appropriate) from *United States Navy Regulations, 1990*, that all personnel in the Navy should know. This listing serves only as a starting place for you to learn about Navy regulations. You are responsible for learning and obeying all regulations. These regulations are not punitive articles, but laws under which the Navy operates. Many exist for your own protection. Failure to obey any regulation subjects the offender to charges under article 92, *UCMJ* (Failure to obey order or regulation).

The first two digits of the article number indicate the chapter of *Navy Regs* from which the article is taken. If the article is self-explanatory, no further explanation is given; the article will be shown in block quotation exactly as stated in *Navy Regs*. Articles that are lengthy and, in some cases, difficult to interpret have been paraphrased to give you a brief overview of what the article contains. Remember that in *Navy Regs*, the words *he*, *his*, or *him* refer to both men and women in the Navy.

0818. Publishing and Posting Orders and Regulations

1. In accordance with Article 137 of the *Uniform Code of Military Justice*, the articles specifically enumerated therein shall be carefully explained to each enlisted person:

a. At the time of entrance on active duty or within six days thereafter;

b. Again, after completion of six months active duty; and

c. Again, upon the occasion of each reenlistment.

2. A text of the articles specifically enumerated in Article 137 of the *Uniform Code of Military Justice* shall be posted in a conspicuous place or places, readily accessible to all personnel of the command.

3. Instructions concerning the *Uniform Code of Military Justice* and appropriate articles of *Navy Regulations* shall be included in the training and educational program of the command.

4. Such general orders, orders from higher authority, and other matters which the

commanding officer considers of interest to the personnel or profitable for them to know shall be published to the command as soon as practicable. Such matters shall also be posted, in whole or in part, in a conspicuous place or places readily accessible to personnel of the command.

5. Upon the request of any person on active duty in the armed services, the following publications shall be made available for that person's personal examination:

- a. A complete text of the *Uniform Code of Military Justice*;
- b. *Manual for Courts-Martial*;
- c. *Navy Regulations*;
- d. *Manual of the Judge Advocate General*;
- e. *Marine Corps Manual* (for Marine Corps personnel); and
- f. *Naval Military Personnel Manual* (for Navy personnel) or *Marine Corps Personnel Manual* (for Marine Corps personnel).

0917. Dealings With Foreigners

When in foreign ports, officers and enlisted personnel should respect local laws, customs, ceremonies, and regulations; display courtesy and moderation; and cultivate a feeling of good will and mutual respect.

1001. Officers of the Naval Service

Officers of the United States naval service shall be known as officers in the line, officers in the staff corps, chief warrant officers and warrant officers.

1002. Precedence of Officers

This article discusses the precedence of officers.

1003. Relative Rank and Precedence of Officers of Different Services

This article explains the relative rank of grades of officers of the Army, Air Force, Marine Corps, Navy, Coast Guard, and members of the National Oceanic and

Atmospheric Administration and Public Health Service serving with the military.

1010. Manner of Addressing Officers

This article describes the proper manner of addressing officers orally and in writing.

1020. Exercise of Authority

All persons in the naval service on active service, and those on the retired list with pay, and transferred members of the Fleet Reserve and the Fleet Marine Corps Reserve, are at all times subject to naval authority. While on active service they may, if not on leave of absence except as noted below, on the sick list, taken into custody, under arrest, suspended from duty, in confinement or otherwise incapable of discharging their duties, exercise authority over all persons who are subordinate to them.

1021. Authority Over Subordinates

This article gives officers the authority necessary to perform their duties.

1022. Delegation of Authority

Although you may delegate authority, that does not relieve you of being responsible. You must make sure the delegated authority is properly exercised and orders and instructions are properly executed.

1023. Abuse of Authority

Persons in authority are forbidden to injure their subordinates by tyrannical or capricious conduct, or by abusive language.

1024. Contradictory and Conflicting Orders

If an enlisted person in naval service receives an order which annuls, suspends or modifies one received from another superior, he or she shall immediately represent the facts to the superior from whom the last order was received. If, after such representation, the superior from whom the last order was received should insist upon the execution of that order, it shall be obeyed. The person receiving and executing such order shall report the circumstances as soon as practicable to the

superior from whom the original order was received.

1025. Authority of an Officer in Command

An officer in command, either of the line or of a staff corps, has authority over all officers and other persons attached to the command, whatever their rank and whether they are of the line or of a staff corps.

1033. Authority in a Boat

This article provides the senior line officer eligible for command at sea the authority over all persons embarked in a boat. It also delegates the officer responsibility for the safety and management of the boat.

1034. Authority and Responsibility of a Senior Officer Under Certain Circumstances

This article gives the senior person present, whether an officer or an enlisted person, the authority to take necessary action during a riot, a quarrel between naval service members, or circumstances not covered by these regulations.

1037. Authority of Warrant Officers, Non-commissioned Officers and Petty Officers

Chief warrant officers, warrant officers, noncommissioned officers and petty officers shall have, under their superiors, all necessary authority for the proper performance of their duties, and they shall be obeyed accordingly.

1038. Authority of a Sentry

A sentry, within the limits stated in his or her orders, has authority over all persons on his or her post.

1052. Orders to Active Service

You may not be ordered to active service without permission of the Chief of Naval Personnel.

1064. Detail of Enlisted Persons for Certain Duties

Petty officers will not be detailed as messmen, except when nonrated persons are unavailable.

1101. Demand for Court Martial

Except as otherwise provided in the *Uniform Code of Military Justice*, no person in the naval service may demand a court martial either on him- or herself or on any other person in the naval service.

1102. Limitations on Certain Punishments

Instruments of restraint, such as handcuffs, chains, irons and straitjackets, shall not be applied as punishment. Other instruments of restraint may not be used except for safe custody and no longer than is strictly necessary
....

The punishments of extra duties and hard labor without confinement are not performed on Sunday, although Sunday counts in the computation of the period for which such punishments are imposed.

Guard duty shall not be inflicted as punishment.

1104. Treatment and Release of Prisoners

Persons in confinement must not be subjected to cruel or unusual treatment. They must be visited at least once every 4 hours to check on their conditions and care for their needs. In the event of an emergency, they may be removed to a safe area or released within the limits of the command. No greater force than is required to restrain or confine an offender should be used to take into custody a person under the influence of alcohol, marijuana, narcotic substances, or of controlled substances.

1105. Places of Confinement

Prisoners must be confined only in brigs or other facilities designated as naval places of confinement by the Secretary of the Navy. In case of necessary temporary confinement, the senior officer present may authorize confinement in spaces that provide sufficient security, safety for both prisoner and guards, and adequate living conditions.

Persons under the influence of alcohol or of drugs should not be confined in any place or manner that may be dangerous to them in their condition.

1110. Standards of Conduct

All Department of the Navy personnel are expected to conduct themselves in accordance with the highest standards of personal and professional integrity and ethics. At a minimum, all personnel shall comply with directives issued by the Secretary of Defense and the Secretary of the Navy regarding the Standards of Conduct and Government Ethics.

1111. Pecuniary Dealings With Enlisted Persons

No officer should have any dealings involving money with enlisted persons except as may be required in the performance of the officer's duties or as involved in the sale of personal property. An officer may be designated by superior authority to accept deposits from enlisted personnel for the purpose of safeguarding those funds under emergency or operational situations.

1112. Lending Money and Engaging in a Trade or Business

Naval personnel must not lend money to another member of the armed services at an interest rate, for the period of the loan, that exceeds 18 percent simple interest per year. Personnel may not act as a salesperson or an agent or engage in a business on board without permission of the commanding officer.

1113. Endorsement of Commercial Product or Process

Except as necessary during contract administration to determine specification or other compliance, no person in the Department of the Navy, in his or her official capacity, shall endorse or express an opinion of approval or disapproval of any commercial product or process.

1115. Report of Fraud

Any suspicions of fraud, collusion, or improper conduct in matters concerning supplies and repairs should be reported to proper authority.

1121. Disclosure, Publication and Security of Official Information

Naval personnel may not make speeches or write anything that might disclose information of interest to

foreign countries or that would aid persons with claims against the United States. If naval personnel publish articles on Navy, political, or international subjects, they must state the views are theirs and not those of the Navy. When such articles are accepted for publication, personnel must forward a complete copy of each article to the Secretary of the Navy.

1122. Adverse Matter in Officer Fitness Reports and Enlisted Performance Evaluation Reports

Information of an adverse nature should not be entered in the record of a person of the naval service unless the member was first afforded an opportunity to submit a written statement regarding the matter. Certain medical and dental entries are excepted.

1125. Inspection of the Record of a Person in the Naval Service

The record of a person in the naval service which is maintained by the Chief of Naval Personnel or the Commandant of the Marine Corps shall be available for inspection by the person or a duly authorized agent, designated as such in writing by the person.

1126. Correction of Naval Records

Any military record in the Department of the Navy may be corrected by the Secretary of the Navy, acting through the Board for Correction of Naval Records, when the Secretary considers that such action should be taken in order to correct an error or to remove an injustice.

Applications for corrections . . . may be made only after exhaustion of all other administrative remedies afforded by law or regulation.

1127. Control of Official Records

No person, without proper authority, shall withdraw official records or correspondence from the files, or destroy them, or withhold them from those persons authorized to have access to them.

1129. Records of Fitness

Records of fitness reflect each officer's and enlisted person's fitness for service and fitness for the performance of duties. These records are used to determine promotions and duty assignments.

1132. Compliance With Lawful Orders

All persons in the naval service are required to obey readily and strictly, and to execute promptly, the lawful orders of their superiors.

1133. Language Reflecting on a Superior

No person in the naval service shall use language which may tend to diminish the confidence in or respect due to his or her superior officer.

1134. Exchange of Duty

An assigned duty may not be changed with another person (such as trading watches) without permission from proper authority.

1135. Relations With Foreign Nations

Naval service members must conform to international law and precedents set by the United States in its relations with foreign nations. Navy personnel visiting foreign nations must respect that country's religious institutions and customs.

1137. Obligation to Report Offenses

All offenses observed should be reported to the proper authority.

1138. Responsibilities Concerning Marijuana, Narcotics and Other Controlled Substances

Personnel may not bring on board any naval activity, or have in their possession at any time, marijuana, narcotics, or any controlled substances.

1140. Capture by an Enemy

A person in the naval service who is captured by the enemy is required to give name, grade or rate, service number, and date of birth. That person will make no statement disloyal to, critical of, or harmful to the United States or its allies.

1142. Unavoidable Separation from a Command

Persons who become separated from their ship, station, or unit by shipwreck, disaster, or other unavoidable happening, should proceed to the nearest U.S. military activity as soon as possible.

1143. Report of a Communicable Disease

Personnel should report any suspicions of communicable disease to their medical representative.

1144. Immunization

Personnel must take the immunizations prescribed for them as scheduled.

1145. Service Examinations

No persons in the Navy, without proper authority, should have or attempt to have in their possession, any examination papers, any part or copy thereof, or any examination answer sheets. They also must not obtain, sell, publish, give, purchase, receive, or reproduce any of these examination products.

1150. Redress of Wrong Committed by a Superior

A person who believes a superior exercises authority in an unjust or cruel manner or is guilty of misconduct should submit a complaint to his or her commanding officer.

1151. Direct Communication With the Commanding Officer

The right of any person in the naval service to communicate with the commanding officer in a proper manner, and at a proper time and place, shall not be denied or restricted.

1152. Suggestions for Improvement

Any person in the Navy may submit suggestions or constructive criticism about efficiency or economical methods of administration or management within the Department of the Navy. Suggestions or criticism should be submitted to the Secretary of the Navy through the chain of command.

1154. Communications to the Congress

Personnel may not, in their official capacity, apply to Congress for congressional action of any kind or provide information requested by Congress. The only exception to this regulation is such communication as authorized by the Secretary of the Navy or as provided by law.

1155. Dealings With Members of Congress

All persons may write to their congressmen on any subject as long as they do not violate security regulations or the law.

1156. Forwarding Individual Requests

Requests from persons in the naval service shall be acted upon promptly. When addressed to higher authority, requests shall be forwarded without delay. The reason should be stated when a request is not approved or recommended.

1157. Leave and Liberty

Leave and liberty will be granted to the maximum extent practicable.

1159. Possession of Weapons

Personnel may not have any weapons or explosives in their possession without proper authority.

1160. Possession of Government Property

Personnel shall not possess, without permission, any property of the United States except what is needed in the performance of their duty.

1162. Alcoholic Beverages

The personal possession of any alcoholic beverages aboard any ship is prohibited. The transportation aboard ship of alcoholic beverages for personal use ashore is authorized subject to the discretion of and under regulations established by the commanding officer.

1164. Equal Opportunity and Treatment

All persons in the Department of the Navy regardless of their race, color, religion, sex, or national origin, consistent with requirements for physical

capabilities, will be afforded equal opportunity and treatment.

1165. Fraternization Prohibited

No person in the Navy is to enter a personal relationship that is unduly familiar, does not respect differences in rank, and is prejudicial to good order and discipline.

1166. Sexual Harassment

Do not make offensive verbal comments, gestures, or physical contact in the work environment. Do not use implicit or explicit sexual behavior to control other personnel.

STANDARD ORGANIZATION AND REGULATIONS OF U.S. NAVY

The Standard Organization and Regulations of the U.S. Navy (SORN) (OPNAVINST 3120.32B) provides regulations and guidance governing the conduct of all members of the Navy. This publication specifies duties and responsibilities of personnel within a unit organization—from the commanding officer down to the messenger of the watch.

Naval personnel who fail to comply with regulations may be awarded punishment based on the *Uniform Code of Military Justice (UCMJ)*. Many regulations are printed on large posters and posted in conspicuous locations aboard naval units.

Excerpts from the Standard Organization and Regulations of the U.S. Navy

This section contains some of the articles contained in chapter 5, "Regulations," of the *SORN*. Self-explanatory articles are shown in block quotation exactly as stated in the (*SORN*). Sections that are lengthy or difficult to interpret are paraphrased to briefly explain the contents of the regulation.

510.5 Armed Forces Identification Cards and Leave Papers

No person without proper authority shall:

- a. Have in his/her possession more than one properly validated Armed Forces identification card.
- b. Depart on liberty without his/her own properly validated identification card; or, in the

case of leave, without his/her own properly validated leave papers and identification card.

c. Have in his/her possession a false or unauthorized identification card; or a mutilated, erased, altered, or not properly validated identification card; or an identification card bearing false or inaccurate information concerning a name, grade, service number, or date of birth.

d. Return from leave without depositing his/her leave papers with the proper authority. Any person returning without an identification card shall report the loss to the OOD in person.

510.14 Customs

Upon arrival of a naval unit in United States territory after visiting a foreign port, it is subject to customs and other inspections by Federal authorities.

a. On such occasions, customs declarations will be distributed to all hands in sufficient time to be filled out and returned before arrival in port.

b. It shall be the duty of all personnel to accurately complete customs declarations prior to arrival in port.

c. No person, without permission from the commanding officer, shall bring on board any article, animal, or any other thing, the introduction of which into U.S. territory is forbidden or restricted under current regulations.

510.16 Divine Services

Accessible and appropriate space shall be provided for divine services. No person shall conduct himself/herself in a manner which would interfere with properly authorized divine services.

510.18 Emergency Equipment

No person shall use emergency equipment for any purpose other than that for which it is intended. Emergency equipment includes items such as battle lanterns, emergency first aid boxes, shoring, wrenches, life rings, equipment in life rafts and boats, portable fire pumps, fire hoses, and fuel for emergency machinery.

510.21 Government Property

No person shall:

a. Conceal or fail to report to proper authority the loss, removal, destruction, or damage of government property entrusted to his/her care or custody.

b. Remove without proper authority from its regular place of stowage or location, for any purpose whatever, any article of government property, including hull and damage control fittings, first aid equipment, life saving and emergency equipment, and stores and foodstuffs.

c. Have in his/her possession any article of Government property except as may be necessary for the performance of his/her duty or as may be authorized by proper authority.

510.27 Intoxicated Persons

a. The officer of the deck or the command duty officer shall ensure that all persons who return on board in an intoxicated condition, or found on board intoxicated, shall be promptly examined by the medical officer or a qualified representative.

b. When restraint is imposed on an individual, it should be in such a manner as to accomplish the desired degree of restraint with a minimum of force. Attachment of an individual to a fixed or immovable object should only be authorized when all else fails, and then a continuous guard should be posted with specific instructions to care for the welfare of the person under restraint in the event of an emergency.

510.34 Motor Vehicles

a. No person shall operate a Government-owned motor vehicle assigned to a naval unit unless specifically designated to do so by the commanding officer, and then only for official unit business.

b. Military personnel operating Government-owned motor vehicles shall comply with all post, station, local, state, and federal directives. U.S. Government operator's

permit is not required for vehicles under one ton.

c. All persons operating Government-owned motor vehicles assigned to a naval unit shall obtain the permission of the OOD before driving away from the unit and shall report to the OOD upon return.

510.35 Working Stocks of Narcotics

All narcotics and other controlled substances authorized for medical purposes shall be in the custody of the medical or dental officer. No one shall have access to this material except as prescribed by these officers or the commanding officer.

a. The medical and dental officers shall supervise in person all receipts and issues of narcotics and other controlled substances in their custody and shall keep proper records of all transactions to ensure strict accountability and detect losses promptly.

b. With the exception of medical and dental officers, no person shall prescribe or administer any narcotics or other controlled substances, either to oneself or to another person, except to aid the injured during action or emergencies. The medical and dental officers may authorize certain hospital corpsmen and dental technicians to administer narcotics and controlled drugs to patients in sick bay per the medical and dental officer's prescription.

c. In units to which no medical officer is attached, all narcotics and dangerous drugs shall be in the custody of the controlled substances custodian, except small quantities of necessary narcotics and dangerous drugs which may be issued to the leading petty officer in the medical department. The narcotics and dangerous drugs shall be kept in a three-combination safe or, if this is not possible, under lock and key. All transactions between the bulk custodian and medical department representative shall be receipted for. Issues from the working stock in the sick bay shall be covered by prescription. Narcotics and

dangerous drugs shall be inventoried monthly by a special inventory board

510.44 Photographic Equipment

No person shall:

a. Possess or introduce on board a naval unit any camera or other photographic equipment capable of exposing a photographic plate or film without permission of the commanding officer or authorized representative.

b. Make photographs of a naval unit or its equipment, or of objects from the unit, without permission of the commanding officer, and then only of the objects for which permission was specifically given.

c. While on watch or duty as a sentry or member of a patrol, knowingly permit the introduction of any camera or photographic equipment on board a naval unit unless such equipment is authorized by the commanding officer or authorized representative.

UNIFORM CODE OF MILITARY JUSTICE

Until 1951 the various branches of our armed forces operated under different military codes. The Army and Air Force were guided in the administration of discipline and in legal processes by the Army's *Articles of War*. The Navy was guided by the *Articles for the Government of the Navy* ("Rocks and Shoals"); and the Coast Guard, by the *Disciplinary Laws of the Coast Guard*. Not surprisingly, then, an act considered an offense in the eyes of the Navy may not have been judged so by the Army. Even if an act was a breach of discipline in all branches of the armed forces, the type of trial and severity of punishment awarded varied.

A standardized code of military justice was recognized as a logical and necessary unification measure. Therefore, then Secretary of Defense, James Forrestal, appointed an interservice committee to study the measure. After an intensive study, the committee drafted what is now known as the *Uniform Code of Military Justice (UCMJ)*. The *UCMJ* was passed by Congress on 5 May 1950, signed into law by the President, and became effective 31 May 1951.

The *Manual for Courts-Martial, United States, 1951 (MCM)* consolidated and standardized varying military legal procedures. Effective 31 May 1951, the same date as the original *UCMJ*, the *MCM* became the

new touchstone of military justice. Case decisions of the Court of Military Appeals and changes in courts-martial procedures have made necessary several changes to the original manual. The current edition is the *Manual for Courts-Martial*, 1984.

Congress and the Navy have taken steps to ensure you will know the disciplinary laws and regulations most likely to affect your daily life. Article 137 of the *UCMJ* states that certain articles of the Code must be explained carefully to every enlisted person at certain intervals. They must be explained at the time the person enters on active duty, after 6 months of active duty, and when the person reenlists. In general, these articles concern the following topics:

<u>Article</u>	<u>Subject</u>
2	Persons subject to the Code
3	Right to try certain persons even though they have been separated from service
7-14	Apprehension and restraint
15	Nonjudicial punishment (captain's mast)
25	Membership of courts-martial
27	Appointment of counsel to courts-martial
31	Compulsory self-incrimination prohibited
37	Unlawful influence on the court
38	Duties of counsel
55	Certain punishments prohibited
77-134	Punitive articles
137	Articles that must be explained
138	Complaints of wrongs
139	Payment for injury or loss of property

Navy Regulations supplements article 137 of the *UCMJ* by requiring each command to post the text of those articles in the preceding list in a conspicuous place. *Navy Regs* also requires each command to include these and other appropriate articles of *Navy Regulations* in the command's training and education program. Copies of the complete *UCMJ* (140 articles), *Navy Regulations*, and other general orders are available to any person desiring to read them.

Excerpts from the *Uniform Code of Military Justice*

The purpose of this section is not to make you an expert on the *Uniform Code of Military Justice*, but to give you an overview of each of the articles prescribed by article 137. Those articles which are self-explanatory are shown in block quotation as stated in the *UCMJ*; no further explanation is given. Some of the more lengthy articles have been edited to present only portions of these articles. Articles that are lengthy and, in some cases, difficult to interpret are paraphrased to give you a brief overview of what the article contains.

The *UCMJ* uses the terms *man* or *he* to refer to all persons in the military service.

Art. 2. Persons Subject to this Code

The following persons are subject to this code:

- (1) Members of a regular component of the armed forces, including those awaiting discharge after expiration of their terms of enlistment; volunteers from the time of their muster or acceptance into the armed forces; inductees from the time of their actual induction into the armed forces; and other persons lawfully called or ordered into, or to duty in or for training in, the armed forces, from the dates when they are required by the terms of the call or order to obey it.

This article includes all persons on active duty, certain retired persons, prisoners, and prisoners of war.

You should specifically note the following provisions of article 2:

- Any person serving a sentence imposed by a court-martial remains subject to the *UCMJ*. Thus, a prisoner who is serving a court-martial sentence may be tried for a crime committed while a prisoner. This applies even though the prisoner's term of enlistment has expired at the time of commission of the crime. A reservist on inactive-duty training is subject to the *UCMJ* when (a) the training is authorized by written orders; (b) the orders are voluntarily accepted by the reservist; and (c) the orders specify that the reservist is subject to the *UCMJ*.
- A reservist on inactive-duty training is subject to the *UCMJ* when (a) the training is authorized by written orders; (b) the orders are voluntarily accepted by the

reservist; and (c) the orders specify that the reservist is subject to the *UCMJ*.

- A reservist ordered into the active military service is subject to the *UCMJ* beginning on the date specified in the orders for the reservist to report for active duty.

- The United States Supreme Court has held unconstitutional the exercise of court-martial jurisdiction over civilians in time of peace.

Art. 3. Jurisdiction to Try Certain Personnel

Article 3 states that a person may be tried by court-martial, even after leaving the service, for offenses committed while under the *UCMJ*.

Art. 7. Apprehension

(a) Apprehension is the taking of a person into custody.

(b) Any person authorized under regulations governing the armed forces to apprehend persons subject to this code or to trial thereunder may do so upon reasonable belief that an offense has been committed and that the person apprehended committed it.

(c) Commissioned officers, warrant officers, petty officers, and noncommissioned officers have authority to quell quarrels, frays, and disorders among persons subject to this code and to apprehend persons subject to this code who take part therein.

Enlisted persons performing police duties should not apprehend an officer except on specific orders of a commissioned officer. The exception is when such apprehension is necessary to prevent disgrace to the service, the commission of a serious offense, or the escape of one who has committed a serious offense. In such cases, the apprehending individual immediately notifies the officer to whom he or she is responsible or an officer of the security police, military police, or shore patrol.

An apprehension is effected by clearly notifying the offender that he or she is thereby taken into custody. The order may be oral or written.

A clear distinction exists between the authority to apprehend and the authority to arrest or confine (article 9). Any person empowered to apprehend an offender,

however, is authorized to secure the custody of an alleged offender until proper authority may be notified.

Art. 8. Apprehension of Deserters

Any civil officer having authority to apprehend offenders under the laws of the United States or of a State, Territory, Commonwealth, or possession, or the District of Columbia may summarily apprehend a deserter from the armed forces and deliver him into the custody of those forces.

When a military service sends out a description of a deserter, with a request for the deserter's apprehension, the notice gives civil officers the authority to apprehend the person.

Art. 9. Imposition of Restraint

(a) Arrest is the restraint of a person by an order not imposed as a punishment for an offense, directing him to remain within certain specified limits. Confinement is the physical restraint of a person.

(b) An enlisted member may be ordered into arrest or confinement by any commissioned officer by an order, oral or written, delivered in person or through other persons subject to this code. A commanding officer may authorize warrant officers, petty officers, or noncommissioned officers to order enlisted members of his command or subject to his authority into arrest or confinement.

(c) A commissioned officer, a warrant officer, or a civilian subject to this code or to trial thereunder may be ordered into arrest or confinement only by a commanding officer to whose authority he is subject, by an order, oral or written, delivered in person or by another commissioned officer. The authority to order such persons into arrest or confinement may not be delegated.

(d) No person may be ordered into arrest or confinement except for probable cause.

(e) Nothing in this article limits the authority of persons authorized to apprehend

offenders to secure the custody of an alleged offender until proper authority may be notified.

Art. 10. Restraint of Persons Charged With Offenses

Any person subject to this code charged with an offense under this code shall be ordered into arrest or confinement, as circumstances may require; but when charged only with an offense normally tried by a summary court-martial, he shall not ordinarily be placed in confinement. When any person subject to this code is placed in arrest or confinement prior to trial, immediate steps shall be taken to inform him of the specific wrong of which he is accused and to try him or to dismiss the charges and release him.

As the words *normally* and *ordinarily* imply, the provisions of this article may not apply in exceptional cases. Whether to confine, arrest, or restrict a person in lieu of arrest is with the discretion of the officer having the power to do so. What this article says, in effect, is that in most instances confinement is not necessary for persons accused of minor offenses.

Art. 11. Reports and Receiving of Prisoners

(a) No provost marshall, commander of a guard, or master-at-arms may refuse to receive or keep any prisoner committed to his charge by a commissioned officer of the armed forces, when the committing officer furnishes a statement, signed by him, of the offense charged against the prisoner.

(b) Every commander of the guard or master-at-arms to whose charge a prisoner is committed shall, within twenty-four hours after that commitment or as soon as he is relieved from guard, report to the commanding officer the name of the prisoner, the offense charged against him, and the name of the person who ordered or authorized the commitment.

An arrest is imposed by notifying the person to be arrested that the person is under arrest and informing the person of the limits of the arrest. The order of arrest may be oral or written. A person to be confined is placed under guard and taken to the place of confinement.

Art. 12. Confinement With Enemy Prisoners Prohibited

No member of the armed forces may be placed in confinement in immediate association with enemy prisoners or other foreign nationals not members of the armed forces.

Members of the armed forces may be confined in the same jails, prisons, or other confinement facilities, however, so long as they are separated from the other categories mentioned.

Art. 13. Punishment Prohibited Before Trial

No person, while being held for trial, may be subjected to punishment or penalty other than arrest or confinement upon the charges pending against him, nor shall the arrest or confinement imposed upon him be any more rigorous than the circumstances required to ensure his presence, but he may be subjected to minor punishment during that period for infractions of discipline.

The minor punishment permitted under article 13 includes that authorized for violations of discipline set forth by the place in which the person is confined. The article does not prevent a person from being required to do ordinary cleaning or policing or from taking part in routine training and duties not involving the bearing of arms.

Art. 14. Delivery of Offenders to Civil Authorities

(a) Under such regulations as the Secretary concerned may prescribe, a member of the armed forces accused of an offense against civil authority may be delivered, upon request, to the civil authority for trial.

(b) When delivery under this article is made to any civil authority of a person undergoing sentence of a court-martial, the delivery, if followed by conviction in a civil tribunal, interrupts the execution of the sentence of the court-martial, and the offender after having answered to the civil authorities for this offense shall, upon the request of competent military

authority, be returned to military custody for the completion of his sentence.

Art. 15. Commanding Officer's Nonjudicial Punishment

Article 15 explains commanding officer's nonjudicial punishment. For some offenses, commanders may offer an article 15 instead of court-martial. If accepted, the commander may impose punishment as permitted by regulations (usually at captain's mast). Receiving an article 15 is not a conviction, and it does not give a person a criminal record. This article will be explained in greater detail later in this chapter under "Nonjudicial Punishment."

Art. 25. Who May Serve on Courts-Martial

Any commissioned officer, including commissioned warrant officers, on active duty with the armed forces is eligible to serve on a court-martial. Any warrant officer on active duty with the armed forces is eligible to serve on a general court-martial (GCM) and special court-martial (SPCM) for the trial of any person, other than a commissioned officer. Any enlisted person on active duty with the armed forces who is not a member of the same unit as the accused is eligible to serve on general and special courts-martial for the trial of enlisted persons. However, enlisted personnel may serve as a member of a court-martial only if, before the assembling of such court, the accused has personally requested in writing that enlisted personnel serve as members of the court.

Art. 27. Detail of Trial Counsel and Defense Counsel

Each general and special court-martial must have a trial counsel and a defense counsel, with such assistants as the convening authority deems necessary. The terms *counsel*, *trial counsel*, and *defense counsel* should be interpreted to mean the detailed counsel named in the convening order. The term *individual counsel* refers to the military counsel selected by the accused or the civilian counsel provided by the accused at his or her own expense.

The trial counsel and defense counsel detailed for a general court-martial must have equivalent legal qualifications. Each must be a judge advocate of the Army, Navy, Air Force, or Marine Corps who is a graduate of an accredited law school or is a member of the bar of a federal court or of the highest court of a state.

duties by the Judge Advocate General of the armed forces of which he or she is a member. A civilian counsel must be a member of the bar of a federal court or of the highest court of a state.

In a special court-martial, the accused must be afforded the opportunity to be represented by counsel qualified under article 27, *UCMJ*, unless such counsel cannot be obtained because of the geographical location or pressing military requirements. If qualified defense counsel cannot be obtained or if the accused has declined qualified counsel, the detailed defense counsel must meet the following requirements. If the detailed defense counsel does not meet the following requirements, an SPCM is not legally constituted:

- If the detailed trial counsel or any assistant trial counsel is qualified to act as counsel before a GCM, the detailed defense counsel must be a person similarly qualified; or
- If the detailed trial counsel or any assistant trial counsel is a judge advocate or a member of the bar of a federal court or the highest court of a state, the detailed defense counsel must be one of the same.

Art. 31. Compulsory Self-Incrimination Prohibited

Article 31 explains your right not to provide evidence against yourself (self-incrimination), a right given to all citizens under the Fifth Amendment to the U.S. Constitution. The following statements explain your rights against self-incrimination:

- You cannot be forced to answer questions or give evidence that may help to prove your guilt.
- You must be told the nature of the offense of which you are accused; that you do not have to make any statement; and that if you do, it can be used against you.
- You cannot be forced to make a statement or give evidence in a trial that is not related to the case or that may degrade you.
- No statement obtained from you by threats or trickery can be used against you in a court-martial trial.

Art. 37. Unlawfully Influencing Action of Court

- (a) No authority convening a general, special, or summary court-martial, nor any

member, military judge, or counsel thereof, with respect to the findings or sentence adjudged by the court, or with respect to any other exercise of its or his functions in the conduct of the proceeding. No person subject to this code may attempt to coerce or, by any unauthorized means, influence the action of a court-martial or any other military tribunal or any member thereof, in reaching the findings or sentence in any case, or the action of any convening, approving, or reviewing authority with respect to his judicial acts

Article 37 is designed to ensure that every court, its members, and its officers are completely free to fulfill their functions without fear of reprisal.

Art. 38. Duties of Trial Counsel and Defense Counsel

The trial counsel prosecutes in the name of the United States and, under the direction of the court, prepares the record of proceedings. The duties of the trial counsel might be compared to those of a civil district attorney. The prosecution must prove beyond a reasonable doubt the guilt of the accused for each offense charged. Of course, such burden of proof is relieved by a plea of guilty. The many duties of the trial counsel vary widely beginning at the time of assignment to the trial. The duties change throughout the preparation for trial, the trial itself, and the preparation and disposition of the record of trial.

All accused persons have the right to be represented before special and general courts-martial by defense counsel. This counsel may be a civilian or military lawyer selected by the accused or may be a defense counsel appointed by the convening authority. If a civilian counsel is selected, the accused must pay the counsel's expenses. If the accused prefers to select counsel, the detailed counsel and assistant counsel act as associate counsel if the accused so desires; otherwise, they may be excused.

Some of the duties of the defense counsel are as follows:

- To advise the accused of the right to have enlisted membership on the court
- To explain the meaning and effect of a guilty plea, if appropriate
- To advise the accused of the right to introduce evidence; to testify or to remain silent; if after

unsworn statement and to introduce evidence as to matters in extenuation and mitigation; and to assert any proper defense or objection

Art. 55. Cruel and Unusual Punishments Prohibited

Article 55 prohibits any cruel or unusual punishment. In particular, courts-martial are forbidden to award sentences that include flogging, branding, marking, or tattooing the body. The use of irons is also prohibited except for the purpose of safe custody.

Punitive Articles of the *UCMJ*

The punitive articles of the *UCMJ* are those numbered 77 through 134. They are the laws of Congress telling you what you must do and must not do, under pain of punishment.

What about civil laws? Can you be given military punishment for nonmilitary offenses? Yes, you can. For example, the only *UCMJ* regulations against drunkenness are for drunken driving and being drunk on duty. Many civilian communities, though, have laws against drunkenness in public. If you are found guilty in civil court and spend time in jail for being drunk in public, the Navy can try you for being absent without leave (*UCMJ*, article 86) and for bringing discredit upon the Navy (*UCMJ*, article 134).

If you willfully refuse to pay just debts, you will be warned to pay them by your commanding officer. Continued failure to pay your debts can lead to an undesirable type of discharge. The Navy has no use for people who do not exhibit integrity and honesty. On the other hand, if you are being gouged by unscrupulous dealers, see your legal officer for assistance.

The punitive articles that follow are those which you are required to know. If you have any questions about their meaning, ask your division officer for guidance.

Art. 77. Principles

The mere fact that a person is at the scene of a crime does not make the person a principal. To be a principal of a crime, the person must be guilty of an intent to aid or encourage the persons who committed the crime.

A person who witnesses a crime can be a principal. Evidence must show the witness had a duty to interfere and the witness's noninterference was intended to

operate and did operate to encourage or protect the perpetrator.

A person may be a principal even though not at the scene of the crime if he or she commanded, advised, or obtained another person to commit an offense.

Art. 78. Accessory After the Fact

Any person subject to this code who, knowing that an offense punishable by this code has been committed, receives, comforts, or assists the offender in order to hinder or prevent his apprehension, trial, or punishment shall be punished as a court-martial may direct.

A person who voluntarily gives an escaped prisoner provisions that permit him or her to avoid pursuers becomes an accessory after the fact to the prisoner's escape. Provisions include transportation, clothing, money, or any other necessities.

Art. 79. Conviction of Lesser Included Offense

An accused may be found guilty of an offense necessarily included in the offense charged or of an attempt to commit either the offense charged or an offense necessarily included therein.

A military tribunal may only try a person who has been charged with violating a particular article or articles of the *UCMJ*. Quite simply, if a person committed what is considered a crime but the code did not include that crime in one of its punitive articles, no court-martial could try him or her. Articles 77, 78, 80, 81, and 82 of the code, thus, encompass persons who may not have taken an active part in or successfully committed an offense. These articles permit persons to be tried for being an accomplice in a crime, even though the crime isn't included in the *UCMJ*.

Article 79 goes a step further by authorizing the finding of guilty of a lesser included offense when a finding of guilty cannot be sustained for the offense charged. For this reason, a charge has three permissible findings: guilty; not guilty; not guilty, but guilty of a violation of article _____.

The key words in article 79 are "offense necessarily included in the offense charged." For example, a violation of article 85 (Desertion) "with intent to remain away therefrom permanently"—invariably is also an uncharged violation of the lesser charge of article 86 (Absent without leave). Proving that an accused deserter had no intention of ever returning might be impossible.

But the date the person absented himself or herself and the date the person (was) returned to military jurisdiction are clear. Thus, many deserters are, for lack of proof of intent, found not guilty, but guilty of a violation of article 86.

Other examples of what generally are held to be lesser included offenses contained in a principal offense include the following:

<u>Art.</u>	<u>Principal offense</u>	<u>Art.</u>	<u>Lesser included offense</u>
94	Mutiny	92	Failure to obey lawful order
94	Sedition	116	Breach of the peace
95	Breach of arrest	134	Breach of restriction
118	Murder	119	Manslaughter
122	Robbery	121	Larceny
124	Maiming	128	Assault with a dangerous weapon

80. Attempts

(a) An act, done with specific intent to commit an offense under this code, amounting to more than mere preparation and tending, even though failing, to effect its commission, is an attempt to commit that offense.

(b) Any person subject to this code who attempts to commit any offense punishable by this code shall be punished as a court-martial may direct, unless otherwise specifically prescribed.

(c) Any person subject to this code may be convicted of an attempt to commit an offense although it appears on the trial that the offense was consummated.

An accused may be guilty of an attempt even though the crime turns out to be impossible to commit because of an outside intervening circumstance. For example, a pickpocket who puts a hand in the pocket of another person with the intent to steal a billfold is guilty of an attempt to commit larceny, even though the pocket is empty.

Art. 81. Conspiracy

Conspiracy is defined as an agreement between two or more persons to commit a crime. Conspiracy refers to such a plan by a group whose intent usually is to commit a crime of a bold nature, such as overthrowing a government.

The agreement in a conspiracy need not be formal. The agreement need only be a common understanding in the minds of the parties to accomplish the objective of the conspiracy.

Art. 82. Solicitation

(a) Any person subject to this code who solicits or advises another or others to desert in violation of . . . article 85 or mutiny in violation of . . . Article 94 shall, if the offense solicited or advised is attempted or committed, be punished with the punishment provided for the commission of the offense, but, if the offense solicited or advised is not committed or attempted, he shall be punished as a court-martial may direct.

(b) Any person subject to this code who solicits or advises another or others to commit an act of misbehavior before the enemy in violation of . . . Article 99 or sedition in violation of . . . Article 94 shall, if the offense solicited or advised is committed, be punished with the punishment provided for the commission of the offense, but, if the offense solicited or advised is not committed, he shall be punished as a court-martial may direct.

Solicitation may be accomplished by other means than by word of mouth or by writing. Any act or conduct that reasonably may be considered as a serious request or advice to commit one of the offenses named in the article may constitute solicitation. The accused may act through other persons in committing this offense.

Art. 83. Fraudulent Enlistment, Appointment, or Separation

Any person who:

(1) procures his own enlistment or appointment in the armed forces by knowingly false representation or deliberate concealment as to his qualifications for that enlistment or

appointment and receives pay or allowances thereunder; or

(2) procures his own separation from the armed forces by knowingly false representation or deliberate concealment as to his eligibility for that separation;

shall be punished as a court-martial may direct.

An essential element of the offense of fraudulent enlistment or appointment is that the accused shall have received pay or allowances while under that enlistment or appointment. Acceptance of food, clothing, shelter, or transportation from the government constitutes receipt of allowances.

After apprehension, an accused charged with having fraudulently obtained separation from a branch of the armed forces is subject to the *UCMJ*. The accused is subject to the *UCMJ* while in the custody of the armed forces and while awaiting trial for the fraudulent separation.

Art. 84. Unlawful Enlistment, Appointment, or Separation

Any person subject to this code who effects an enlistment or appointment in or a separation from the armed forces of any person who is known to him to be ineligible for that enlistment, appointment, or separation because it is prohibited by law, regulation, or order shall be punished as a court-martial may direct.

Art. 85. Desertion

Members of the armed forces who, without permission, leave their place of duty or organization with the intent to remain away permanently are guilty of desertion.

The status of an absentee changes to that of a deserter after 30 days of absence, or sooner if the intent to desert is apparent. For example, suppose a Navy member goes ashore without permission, taking all personal belongings and announcing to shipmates that he or she is leaving the service for good. That person could be immediately declared a deserter.

After an individual is declared a deserter, notification is forwarded to the next of kin; the deserter's hometown police; and various other law enforcement agencies, including the FBI. Deserters are nearly always caught and identified because of nationwide fingerprinting and identification practices. Furthermore,

expenses incurred in the return of the deserter to military control are chargeable to the returned absentee.

The effects of desertion can be many; some can be severe. If tried and convicted of desertion, the deserter is almost certainly imprisoned; in time of war, the deserter may be executed. A person whose conviction of desertion in time of war results in a dishonorable discharge can never hold any office of trust or profit in the United States government.

Art. 86. Absence Without Leave

Any member of the armed forces who, without authority—

- (1) fails to go to his appointed place of duty at the time prescribed;
- (2) goes from that place; or
- (3) absents himself or remains absent from his unit, organization, or place of duty at which he is required to be at the time prescribed;

shall be punished as a court-martial may direct.

This article covers every case not provided for in the other punitive articles in which an armed forces member, through that member's own fault, is not in a required location at a specified time. As opposed to desertion, whether or not the member intended to remain away makes no difference. The intent is expressed by the member's absence.

Make sure you avoid the bad habit of taking the last bus, train, or plane when returning from leave. Always allow time for unexpected delays.

Art. 87. Missing Movement

Any person subject to this code who through neglect or design misses the movement of a ship, aircraft, or unit with which he is required in the course of duty to move shall be punished as a court-martial may direct.

Provisions of article 87 should be self-explanatory. However, note that the violator, to be found guilty, need not have known the exact hour or even the exact date of the scheduled movement. If a person had knowledge of only the approximate date, the court may convict the absentee on the charge of missing movement. Missing ship is a serious offense to the Navy. It leaves the ship shorthanded and requires somebody to do the absentee's work and stand the absentee's watches.

Art. 88. Contempt Toward Officials

Any commissioned officer who uses contemptuous words against the President, the Vice President, Congress, the Secretary of Defense, the Secretary of a military department, the Secretary of the Treasury, or the Governor or legislature of any State, Territory, Commonwealth, or possession in which he is on duty or present shall be punished as a court-martial may direct.

Art. 89. Disrespect Toward Superior Commissioned Officer

Any person subject to this code who behaves with disrespect toward his superior commissioned officer shall be punished as a court-martial may direct.

A superior commissioned officer is a commissioned officer who is superior in rank or command. Disrespect includes insulting words, insolence, impertinence, undue familiarity or other rudeness, and failing to salute.

Art. 90. Assaulting or Willfully Disobeying Superior Commissioned Officer

Any person subject to this code who—

- (1) strikes his superior commissioned officer or lifts up any weapon or offers any violence against him while he is in the execution of his office; or
- (2) willfully disobeys a lawful command of his superior commissioned officer;

shall be punished, if the offense is committed in time of war, by death or such other punishment as a court-martial may direct, and if the offense is committed at any other time, by such punishment, other than death, as a court-martial may direct.

An officer is in the "execution of his office" when performing any act the officer is required or authorized to do. Note that the article is not confined to striking a superior commissioned officer; it takes in brandishing a weapon or waving a fist under the officer's nose.

Willful disobedience, as used here, means intentional defiance of a lawful order. You must presume that any order given by an officer is legal. If you disobey because you think otherwise, you do so at your own risk.

It is better to do your questioning after you have carried out the order.

Art. 91. Insubordinate Conduct Toward Warrant Officer, Noncommissioned Officer, or Petty Officer

Any warrant officer or enlisted member who—

(1) strikes or assaults a warrant officer, noncommissioned officer, or petty officer, while that officer is in execution of his office;

(2) willfully disobeys the lawful order of a warrant officer, noncommissioned officer, or petty officer; or

(3) treats with contempt or is disrespectful in language or deportment toward a warrant officer, noncommissioned officer, or petty officer, while that officer is in the execution of his office;

shall be punished as a court-martial may direct.

This article has the same general objectives with respect to warrant officers, noncommissioned officers, and petty officers as articles 89 and 90 have with respect to commissioned officers. Namely, it ensures obedience to their lawful orders and protects them from violence, insult, or disrespect.

Art. 92. Failure To Obey Order or Regulation

Any person subject to this code who—

(1) violates or fails to obey any lawful general order or regulation;

(2) having knowledge of any other lawful order issued by a member of the armed forces, which it is his duty to obey, fails to obey the order; or

(3) is derelict in the performance of his duties;

shall be punished as a court-martial may direct.

A general order or regulation is one that applies generally to an armed force. It may be issued by the President or the Secretary of Defense, the Secretary of Transportation, or the Secretary of a military department. It may also be issued by an officer having general court-martial jurisdiction, a general or flag

officer in command, or a commander superior to one of these.

Disobedience of "any other lawful order" requires that the person must have had a duty to obey the order and must have had knowledge of the order. An accused may be charged with disobedience of the lawful order of one not a superior, provided the accused had a duty to obey such order. Examples are lawful orders of a sentinel or of members of the armed forces police.

Dereliction in the performance of duties occurs when a person willfully or negligently fails to perform them or performs them in a culpably inefficient manner. To be culpably inefficient, an accused must have had the ability and opportunity to perform the assigned duties efficiently, but performed them inefficiently nevertheless.

Art. 93. Cruelty and Maltreatment

Any person subject to this code who is guilty of cruelty toward, or oppression or maltreatment of, any person subject to his orders shall be punished as a court-martial may direct.

The cruelty, oppression, or maltreatment must be real, although not necessarily physical. To assault and to subject to improper punishment are examples of this offense. The assignment of necessary or proper duties and the requirement for their correct performance will not constitute this offense even though such duties are arduous or hazardous or both.

Art. 94. Mutiny or Sedition

There are two distinct types of mutiny, both requiring an intent to usurp (to seize and hold by force without the legal right or authority) or override military authority. One type would be the creation of violence or disturbance with the intent to commit mutiny. This act may be committed by one person acting alone or by more than one. The other type of mutiny consists of a refusal in concert (in agreement) with any other person to obey or otherwise do one's duty. This second type of mutiny constitutes what is termed *collective insubordination*; it necessarily includes some combination of two or more persons in resisting lawful military authority.

Art. 95. Resistance, Breach of Arrest, and Escape

Any person subject to this code who resists apprehension or breaks arrest or who escapes from custody or confinement shall be punished as a court-martial may direct.

Art. 96. Releasing Prisoner Without Proper Authority

Any person subject to this code who, without proper authority, releases any prisoner committed to his charge, or who through neglect or design suffers any such prisoner to escape, shall be punished as a court-martial may direct, whether or not the prisoner was committed in strict compliance with law.

Art. 97. Unlawful Detention

Any person subject to this code who, except as provided by law, apprehends, arrests, or confines any person shall be punished as a court-martial may direct.

Any unlawful restraint of another's freedom will result in a violation of this article, whether or not such action is taken under the appearance of authority.

Art. 98. Noncompliance With Procedural Rules

Any person subject to this code who—

(1) is responsible for unnecessary delay in the deposition of any case of a person accused of an offense under this code; or

(2) knowingly and intentionally fails to enforce or comply with any provision of this code regulating the proceedings before, during, or after trial of an accused;

shall be punished as a court-martial may direct.

Art. 99. Misbehavior Before the Enemy

Any member of the armed forces who before or in the presence of the enemy—

(1) runs away;

(2) shamefully abandons, surrenders, or delivers up any command, unit, place, or

military property which it is his duty to defend;

(3) through disobedience, neglect, or intentional misconduct endangers the safety of any such command, unit, place, or military property;

(4) casts away his arms or ammunition;

(5) is guilty of cowardly conduct;

(6) quits his place of duty to plunder or pillage;

(7) causes false alarms in any command, unit, or place under control of the armed forces;

(8) willfully fails to do his utmost to encounter, engage, capture, or destroy any enemy troops, combatants, vessels, aircraft, or any other thing, which it is his duty so to encounter, engage, capture, or destroy; or

(9) does not afford all practicable relief and assistance to any troops, combatants, vessels, or aircraft of the armed forces belonging to the United States or their allies when engaged in battle;

shall be punished by death or such other punishment as a court-martial may direct.

Art. 100. Subordinate Compelling Surrender

Any person subject to this code who compels or attempts to compel the commander of any place, vessel, aircraft, or other military property, or of any body of members of the armed forces, to give it up to an enemy or to abandon it, or who strikes the colors or flag to an enemy without proper authority, shall be punished by death or such other punishment as a court-martial may direct.

Although these offenses are similar to mutiny, they do not require concert of action. The compulsion to surrender must be by acts rather than words. To "strike the colors or flag" is to surrender. The offense is committed by anyone subject to the *UCMJ* who assumes the authority to surrender a military force or position when that person is not authorized to do so either by competent authority or by the necessities of battle.

Art. 101. Improper Use of Countersign

Any person subject to this code who in time of war discloses the parole or countersign to any person not entitled to receive it or who gives to another who is entitled to receive and use the parole or countersign a different parole or countersign from that which, to his knowledge, he was authorized and required to give, shall be punished by death or such other punishment as a court-martial may direct.

A *countersign* is a word designated by the principal headquarters of a command to aid guards and sentinels in their scrutiny of persons who apply to pass the lines. It consists of a secret challenge and a password. A *parole* is a word used as a check on the countersign; it is imparted only to those who are entitled to inspect guards and to commanders of guards.

Art. 102. Forcing a Safeguard

Any person subject to this code who forces a safeguard shall suffer death or such other punishment as a court-martial may direct.

A *safeguard* is a detachment, guard, or detail posted by a commander. It protects persons, places, or property of the enemy or of a neutral affected by the relationship of the opposing forces in their prosecution of war or during a state of conflict. The term also includes a written order left by a commander with an enemy subject or posted upon enemy property for the protection of the individual or property concerned. The effect of a safeguard is a pledge of honor by a nation that its armed force will respect the person or property concerned.

Art. 103. Captured or Abandoned Property

(a) All persons subject to this code shall secure all public property taken from the enemy for the service of the United States, and shall give notice and turn over to the proper authority without delay all captured or abandoned property in their possession, custody, or control.

(b) Any person subject to this code who—

(1) fails to carry out the duties prescribed in subsection (a);

(2) buys, sells, trades, or in any way deals in or disposes of captured or abandoned property, whereby he receives or expects any profit, benefit, or advantage to himself or

another directly or indirectly connected with himself; or

(3) engages in looting or pillaging;

shall be punished as a court-martial may direct.

Immediately upon its capture from the enemy, public property becomes the property of the United States. Persons subject to military law have an immediate duty to take those steps within their power and functions to secure such property to the service of the United States. They then have the duty to protect that property from destruction or loss.

Art. 104. Aiding the Enemy

Any person who—

(1) aids, or attempts to aid, the enemy with arms, ammunition, supplies, money or other things; or

(2) without proper authority, knowingly harbors or protects or gives intelligence to, or communicates or corresponds with or holds any intercourse with the enemy, either directly or indirectly;

shall suffer death or such other punishment as a court-martial or military commission may direct.

This article applies to all persons whether or not they are otherwise subject to military law. Enemy denotes citizens as well as members of military organizations. All the citizens of hostile nations, as well as their government, are our enemies.

Art. 105. Misconduct as Prisoner

Misconduct covers unauthorized conduct by a prisoner of war that tends to improve his or her condition to the detriment of other prisoners. Such acts may be the reporting of plans to escape or the reporting of secret caches of food, equipment, or arms. The acts must be related to the captors and tend to have the probable effect of bestowing upon the accused some favor with, or advantage from, the captors. The act of the accused must be contrary to law, custom, or regulation. For example, the escape of a prisoner might result in closer confinement or other measures against fellow prisoners still in the hands of the enemy. Such escape, however, is not an offense under this article, as escape from the enemy is regarded as authorized by custom.

Any person who in time of war is found lurking as a spy or acting as a spy in or about any place, vessel, or aircraft, within the control or jurisdiction of any of the armed forces, or in or about any shipyard, any manufacturing or industrial plant, or any other place or institution engaged in work in aid of the prosecution of the war by the United States, or elsewhere, shall be tried by a general court-martial or by a military commission and on conviction shall be punished by death.

The words *any person* bring within the jurisdiction of courts-martial and military commissions all persons of whatever nationality or status who commit the offense of spying.

Art. 107. False Official Statements

Any person subject to this code who, with intent to deceive, signs any false record, return, regulation, order, or other official document, knowing it to be false, or makes any other false official statement knowing it to be false, shall be punished as a court-martial may direct.

Several articles of the *UCMJ* provide for the punishment of untruths: articles 83 and 84 (Fraudulent and unlawful enlistment, appointment, or separation), article 107 (False official statements), article 131 (Perjury), and article 132 (Fraud). You can see how highly *truth* is regarded in the military service.

A statement, whether oral or in writing, is official when it is made pursuant to regulations. A statement is also official when made in response to a request or question from one's commanding officer or a person acting under the commanding officer's authority. Official statements thus include all those made in the line of duty.

Art. 108. Military Property of the United States—Loss, Damage, Destruction, or Wrongful Disposition

Any person subject to this code who, without proper authority—

(2) willfully or through neglect damages, destroys, or loses; or

(3) willfully or through neglect suffers to be lost, damaged, destroyed, sold, or wrongfully disposed of;

any military property of the United States, shall be punished as a court-martial may direct.

Whether the property in question was issued to the accused, whether it was issued to someone other than the accused, or whether it was issued at all is immaterial.

Willful means intentional. *Neglect* means inattention to duty or failure to take action that, under the circumstances, should have been taken to prevent the loss, destruction, or damage.

Art. 109. Property Other Than Military Property of United States—Waste, Spoilage, or Destruction

Any person subject to this code who willfully or recklessly wastes, spoils, or otherwise willfully and wrongfully destroys or damages any property other than military property of the United States shall be punished as a court-martial may direct.

Wastes and *spoils* refer to wrongful acts of voluntary destruction, such as burning down buildings, burning piers, tearing down fences, or cutting down trees. To be destroyed, property need be only sufficiently injured to be useless for the purpose for which it was intended. *Damage* consists of any physical injury to the property. The property must be other than military property of the United States and must belong to one other than the accused.

Art. 110. Improper Hazarding of Vessel

(a) Any person subject to this code who willfully and wrongfully hazards or suffers to be hazarded any vessel of the armed forces shall suffer death or such other punishment as a court-martial may direct.

(b) Any person subject to this code who negligently hazards or suffers to be hazarded

any vessel of the armed forces shall be punished as a court-martial may direct.

The word *suffers* means to allow or permit. A person suffers a ship to be hazarded who, although not in direct control of the vessel, knows a danger to be imminent but takes no steps to prevent it. For example, a plotting officer of a ship underway inadvertently fails to report observation of a radar target on a collision course with, and dangerously close to, the ship. The officer has negligently suffered the ship to be hazarded.

Art. 111. Drunken or Reckless Driving

Any person subject to this code who operates any vehicle while drunk, or in a reckless or wanton manner, shall be punished as a court-martial may direct.

Operating a vehicle includes not only driving or guiding it while in motion. It also includes the setting of its motive power into action or the manipulating of its controls to cause the vehicle to move. The term *vehicle* applies to all types of land transportation, whether motor-driven or passenger-carrying. Drunken or reckless operation of water or air transportation may be charged as a violation of article 134. For the meaning of *drunk*, see the remarks following article 112.

Art. 112. Drunk on Duty

Any person subject to this code, other than a sentinel or lookout, who is found drunk on duty, shall be punished as a court-martial may direct.

The term *on duty* in article 112 refers to routine or detailed duties on board a ship or station. The term does not cover periods of leave or liberty (which come under a different article), but does include duties of a standby nature. A person whose mental or physical abilities are impaired by either liquor or drugs may be considered drunk.

Art. 112a. Wrongful Use, Possession, etc., of Controlled Substances

(a) Any person subject to this code who wrongfully uses, possesses, manufactures, distributes, imports into the customs territory of the United States, exports from the United States, or introduces into an installation, vessel, vehicle, or aircraft used by or under the control

subsection (b) shall be punished as a court-martial may direct.

(b) The substances referred to in subsection (a) are the following:

(1) Opium, heroin, cocaine, amphetamine, lysergic acid diethylamide, methamphetamine, phencyclidine, barbituric acid, and marijuana and any compound or derivative of any such substance.

(2) Any substance not specified in clause (1) that is listed on a schedule of controlled substances prescribed by the President for the purposes of this article.

(3) Any other substance not specified in clause (1) or contained on a list prescribed by the President under clause (2) that is listed in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812).

Art. 113. Misbehavior of Sentinel

Any sentinel or lookout who is found drunk or sleeping upon his post, or leaves it before he is regularly relieved, shall be punished, if the offense is committed in time of war, by death or such other punishment as a court-martial may direct, but if the offense is committed at any other time, by such punishment other than death as a court-martial may direct.

A post is not limited by some actual or imaginary line, nor is it confined to those times when you may be on watch as a sentry. This article covers all periods when you are standing a watch of any kind, such as guarding stores or prisoners or acting as a bow lookout. It also covers periods when you are performing any other duty that requires you to remain alert at all times.

A sentinel on post who is found asleep or drunk is guilty of a serious offense; in time of war, the offense may be punishable by death. For persons in the armed forces, drunkenness is prejudicial to good order and discipline whenever and wherever it appears. Being drunk in public, whether a person is in uniform or civilian clothes, may bring discredit upon the service, while being drunk on station is a breach of military discipline. But being drunk while on duty as a sentinel or lookout in time of war might endanger every person

Art. 114. Dueling

Any person subject to this code who fights or promotes, or is concerned in or connives at fighting a duel, or who, having knowledge of a challenge sent or about to be sent, fails to report the fact promptly to the proper authority, shall be punished as a court-martial may direct.

Art. 115. Malingering

Any person subject to this code who for the purpose of avoiding work, duty, or service—

- (1) feigns illness, physical disablement, mental lapse or derangement; or
- (2) intentionally inflicts self-injury;

shall be punished as a court-martial may direct.

Malingering is an offense defined as any act to avoid duty by pretending to be ill or physically/mentally disabled.

Art. 116. Riot or Breach of Peace

Any person subject to this code who causes or participates in any riot or breach of the peace shall be punished as a court-martial may direct.

The term *riot* is used when a disturbance is caused by a group of three or more persons engaged in a concerted action against anyone who may oppose them.

Breach of the peace is an unlawful disturbance by violent or turbulent means that disturbs the peace of the community. Engaging in a fight and using abusive words in public are examples of breach of the peace. As used in this article, *community* includes any military installation or ship, as well as a civilian community.

Art. 117. Provoking Speeches or Gestures

Any person subject to this code who uses provoking or reproachful words or gestures towards any other person subject to this code shall be punished as a court-martial may direct.

Provoking and *reproachful* describe those words or gestures used in the presence of the person to whom they are directed which tend to induce breaches of the peace. They do not include reprimands, censures, reproofs, and the like, which may properly be administered in the interests of training, efficiency, or discipline in the armed forces.

Art. 118. Murder

Any person subject to this code who, without justification or excuse, unlawfully kills a human being, when he—

- (1) has a premeditated design to kill;
- (2) intends to kill or inflict great bodily harm;
- (3) is engaged in an act which is inherently dangerous to others and evinces a wanton disregard of human life; or
- (4) is engaged in the perpetration or attempted perpetration of burglary, sodomy, rape, robbery, or aggravated arson;

is guilty of murder, and shall suffer such punishment as a court-martial may direct, except that if found guilty under clause (1) or (4), he shall suffer death or imprisonment for life as a court-martial may direct.

Art. 119. Manslaughter

(a) Any person subject to this code who, with an intent to kill or inflict great bodily harm, unlawfully kills a human being in the heat of sudden passion caused by adequate provocation is guilty of voluntary manslaughter and shall be punished as a court-martial may direct.

(b) Any person subject to this code who, without an intent to kill or inflict great bodily harm, unlawfully kills a human being—

- (1) by culpable negligence; or
- (2) while perpetrating or attempting to perpetrate an offense, other than those named in clause (4) of . . . Article 118, directly affecting the person;

is guilty of involuntary manslaughter and shall be punished as a court-martial may direct.

Manslaughter is the unlawful killing of another. There are two basic types of manslaughter: voluntary and involuntary.

Voluntary manslaughter is the unlawful killing of another when there is an intent to kill or inflict great bodily harm, but the act is committed in the heat of sudden passion caused by adequate provocation.

Involuntary manslaughter is the unlawful killing of another committed without an intent to kill or inflict great bodily harm.

Art. 120. Rape and Carnal Knowledge

(a) Any person subject to this code who commits an act of sexual intercourse with a female not his wife, by force and without her consent, is guilty of rape and shall be punished by death or such other punishment as a court-martial may direct.

(b) Any person subject to this code who, under circumstances not amounting to rape, commits an act of sexual intercourse with a female not his wife who has not attained the age of sixteen years, is guilty of carnal knowledge and shall be punished as a court-martial may direct.

(c) Penetration, however slight, is sufficient to complete these offenses.

Art. 121. Larceny and Wrongful Appropriation

Larceny is stealing something and keeping it; *wrongful appropriation* is taking something not your own, but only temporarily. Legally, taking or withholding is wrong if done without the consent of the owner; obtaining usually implies getting something under false pretenses. All of these meanings denote theft.

The most common example of larceny, of course, is outright theft. An example of obtaining something under false pretenses is obtaining a radio from a person who borrowed it from the owner and saying you will return it to the owner, but instead, selling it.

An example of wrongful appropriation is taking someone's car without permission and going for a joyride, later returning or abandoning the car.

Art. 122. Robbery

Any person subject to this code who with intent to steal takes anything of value from the person or in the presence of another, against his will, by means of force or violence or fear of immediate or future injury to his person or property or to the person or property of a relative or member of his family or of anyone in his company at the time of the robbery, is

guilty of robbery and shall be punished as a court-martial may direct.

When a robbery is committed by force or violence, evidence must exist of actual force or violence to the victim preceding or accompanying the taking against the victim's will. Whether or not fear is engendered in the victim is immaterial.

When a robbery is committed by means of fear, no evidence is required of actual force or violence. However, evidence of demonstrations of force or menaces that place the victim in such fear that the victim is warranted in offering no resistance is required.

Art. 123. Forgery

Any person subject to this code who, with intent to defraud—

(1) falsely makes or alters any signature to, or any part of, any writing which would, if genuine, apparently impose a legal liability on another or change his legal right or liability to his prejudice; or

(2) utters, offers, issues, or transfers such a writing, known by him to be so made or altered;

is guilty of forgery and shall be punished as a court-martial may direct.

A forgery may be committed by a person's signing his or her own name to an instrument. For example, presume a check payable to the order of a certain person comes into the hands of another person of the same name. The receiver commits forgery if, knowing the check to be another person's, he or she endorses it with his or her own name with the intent to defraud.

Some of the instruments most frequently subject to forgery are checks, orders for delivery of money or goods, military orders directing travel, and receipts. A writing may be falsely "made" by materially altering an existing writing; by filling in or signing the blanks in a paper, such as a blank check; or by signing an instrument already written.

Art. 123 a. Making, Drawing, or Uttering Check, Draft, or Order Without Sufficient Funds

This article provides specific statutory authority for the prosecution of bad-check offenses. In the absence of evidence indicating otherwise, bad faith might be shown

maintain sufficient funds for payment of checks upon presentation is a violation of article 134. This offense is lesser included offense under article 123, not requiring proof of fraudulent intent.

Art. 124. Maiming

Any person subject to this code who, with intent to injure, disfigure, or disable, inflicts upon the person of another an injury, which—

- (1) seriously disfigures his person by any mutilation thereof;
- (2) destroys or disables any member or organ of his body; or
- (3) seriously diminishes his physical vigor by the injury of any member or organ;

is guilty of maiming and shall be punished as a court-martial may direct.

Maiming includes putting out a person's eye; cutting off a person's hand, foot, or finger; or knocking out a person's front teeth, as these injuries destroy or disable those members or organs. Maiming also includes cutting off a person's ear or scaring a person's face, as these injuries seriously disfigure the person. Injuring an internal organ so as to seriously diminish the physical vigor of a person is also considered maiming.

The disfigurement, diminishment of vigor, or destruction or disablement of any member or organ must be a serious injury, one of a substantially permanent nature. However, the offense is complete if such an injury is inflicted, even though the victim may eventually recover the use of the member or organ or the disfigurement may be cured by surgery.

Art. 125. Sodomy

(a) Any person subject to this code who engages in unnatural carnal copulation with another person of the same or opposite sex or with an animal is guilty of sodomy. Penetration,

be punished as a court-martial may direct.

Any unnatural method of carnal copulation is prohibited by this article. Any penetration, however slight, is sufficient to complete the offense; emission is not necessary.

Art. 126. Arson

(a) Any person subject to this code who willfully and maliciously burns or sets on fire an inhabited dwelling, or any other structure, movable or immovable, wherein to the knowledge of the offender there is at the time a human being, is guilty of aggravated arson and shall be punished as a court-martial may direct.

(b) Any person subject to this code who willfully and maliciously burns or sets fire to the property of another, except as provided in subsection (a), is guilty of simple arson and shall be punished as a court-martial may direct.

In aggravated arson, danger to human life is the essential element; in simple arson, it is injury to the property of another. In either case, the fact that no one is injured is immaterial.

Art. 127. Extortion

Any person subject to this code who communicates threats to another person with the intention thereby to obtain anything of value or any acquittance, advantage, or immunity is guilty of extortion and shall be punished as a court-martial may direct.

A threat may be communicated by word of mouth or in writing, the essential element of the offense being the knowledge of the threat to the victim. An acquittance is, in general terms, a release or discharge from an obligation. An intent to obtain any advantage or immunity of any description may include an intent to make a person do an act unwillingly.

The threat sufficient to constitute extortion may be a threat against the person or property of the individual threatened. It may also be a threat of unlawful injury or any other harm to any family member or other person held dear to the victim.

(a) Any person subject to this code who attempts or offers with unlawful force or violence to do bodily harm to another person, whether or not the attempt or offer is consummated, is guilty of assault and shall be punished as a court-martial may direct.

(b) Any person subject to this code who—

(1) commits an assault with a dangerous weapon or other means of force likely to produce death or grievous bodily harm; or

(2) commits an assault and intentionally inflicts grievous bodily harm with or without a weapon;

is guilty of aggravated assault and shall be punished as a court-martial may direct.

Section (a) describes the offense of simple assault. Swinging your fist, pointing a gun at a person, or raising a club over someone's head, even though no harm is actually done, is each an act of simple assault. When the threat is consummated and force is applied to the victim, the offense becomes assault and battery.

Section (b) describes aggravated assault, of which there are two types. The first is assault with a dangerous weapon and other means of force likely to kill or grievously harm the victim (like shoving a person over the fantail). The second type takes place when an assailant intentionally inflicts severe bodily harm, with or without a weapon. If, after you have knocked an individual down, you repeatedly kick him or her so as to break the person's ribs, you have committed aggravated assault.

Art. 129. Burglary

Any person subject to this code who, with intent to commit an offense punishable under . . . Articles 118-128, breaks and enters, in the nighttime, the dwelling house of another, is guilty of burglary and shall be punished as a court-martial may direct.

The house must be a dwelling place at the time of the breaking and entry, but the residents do not have to actually be in it. A simple act such as opening a closed door or window or some other similar fixture or cutting out the glass of a window or the netting of a screen constitutes breaking. Entry gained through a trick, false pretense, impersonation, intimidation, or collusion also

carrying out the intent for which the house was broken into is not an essential element.

Art. 130. Housebreaking

Any person subject to this code who unlawfully enters the building or structure of another with intent to commit a criminal offense therein is guilty of housebreaking and shall be punished as a court-martial may direct.

The initial entering must amount to trespassing; this article is not violated if the accused entered the building or structure lawfully, even though the person had the intent to commit an offense therein. This offense is broader than burglary in that the place entered need not be a dwelling house; also, the place need not be occupied. A breaking is not essential. The entry may be either in the nighttime or in the daytime. The criminal intent is not limited to those offenses punishable under articles 118 through 128.

Art. 131. Perjury

Any person subject to this code who in a judicial proceeding or in a course of justice willfully and corruptly gives, upon a lawful oath or in any form allowed by law to be substituted for an oath, any false testimony material to the issue or matter of inquiry is guilty of perjury and shall be punished as a court-martial may direct.

Judicial proceeding includes a trial by court-martial, and the *course of justice* includes an investigation conducted under article 32.

For false testimony to be "willfully and corruptly" given, the accused must appear not to believe his or her testimony to be true.

The false testimony must be with respect to a material matter, but that matter need not be the main issue in the case. Thus, a person may commit perjury by giving false testimony about the credibility of a material witness, as well as by giving false testimony concerning either direct or circumstantial evidence.

Art. 132. Frauds Against the United States

This article deals with frauds against the United States. It pertains to making false claims against the government to obtain money or property.

It also pertains to the offense of making a writing or other paper known to contain a false statement for the

the claim has been presented.

133. Conduct Unbecoming an Officer and a Gentleman

Any commissioned officer, cadet, or midshipman who is convicted of conduct unbecoming an officer and a gentleman shall be punished as a court-martial may direct.

134. General Article

Though not specifically mentioned in this code, all disorders and neglects to the prejudice of good order and discipline in the armed forces, all conduct of a nature to bring discredit upon the armed forces, and crimes and offenses not capital, of which persons subject to this code may be guilty, shall be taken cognizance of by a general, special, or summary court-martial, according to the nature and degree of the offense, and shall be punished at the discretion of that court.

Article 134 makes punishable acts or omissions not specifically mentioned in other articles. Those acts include wearing an improper uniform, abusive use of a military vehicle, the careless discharge of a firearm, and impersonating an officer. They also include offenses involving official passes, permits, and certificates, and wrongful possession of a habit-forming narcotic.

Discredit means to injure the reputation of; that is, bring the service into disrepute. Examples include in violation of state or foreign laws, failure to pay debts, adultery, bigamy, and indecent acts.

Crimes and offenses not capital include those acts of commissions, not punishable by another article, pronounced as crimes or offenses by enactments of Congress or under authority of Congress and made triable in the federal civil courts. Certain of such offenses are made punishable wherever committed; others are punishable only if committed within the geographical boundaries of the areas in which they are applicable.

carefully explained to each enlisted member at the time of his entrance on active duty, or within six days thereafter. They shall be explained again after he has completed six months of active duty, and again at the time when he reenlists. A complete text of the *Uniform Code of Military Justice* and of the regulations prescribed by the President thereunder shall be made available to any person on active duty upon his request, for his personal examination.

Art. 138. Complaints of Wrongs

Any member of the armed forces who believes himself wronged by his commanding officer, and who, upon due application to that commanding officer, is refused redress, may complain to any superior commissioned officer, who shall forward the complaint to the officer exercising general court-martial jurisdiction over the officer against whom it is made. The officer exercising general court-martial jurisdiction shall examine into the complaint and take proper measures for redressing the wrong complained of; and he shall, as soon as possible, send to the Secretary concerned a true statement of that complaint, with the proceedings had thereon.

This article provides for redress of wrongs inflicted by a commanding officer on subordinates, and it prescribes the procedure to be followed by subordinates to apply for such redress.

Art. 139. Redress of Injuries to Property

(a) Whenever complaint is made to any commanding officer that willful damage has been done to the property of any person or that his property has been wrongfully taken by members of the armed forces, he may, under such regulations as the Secretary concerned may prescribe, convene a board to investigate the complaint. The board shall consist of from one to three commissioned officers and, for the purpose of that investigation, it has power to summon witnesses and examine them upon oath, to receive depositions or other documentary evidence, and to assess the damages sustained against the responsible

parties. The assessment of damages made by the board is subject to the approval of the commanding officer, and in the amount approved by him shall be charged against the pay of the offenders. The order of the commanding officer directing charges herein authorized is conclusive on any disbursing officer for the payment by him to the injured parties of the damages so assessed and approved.

(b) If the offenders cannot be ascertained, but the organization or detachment to which they belong is known, charges totaling the amount of damages assessed and approved may be made in such proportion as may be considered just upon the individual members thereof who are shown to have been present at the scene at the time the damages complained of were inflicted, as determined by the approved findings of the board.

Nonjudicial Punishment

If you break a rule or are negligent, careless, or unmilitary in your conduct, you may be put on report by an officer or petty officer. Being *put on report* means you must appear before the commanding officer at a specified time for nonjudicial punishment (*UCMJ*, art. 15); that is, you must appear at captain's mast.

Art. 15. Commanding Officer's Nonjudicial Punishment

(a) Under such regulations as the President may prescribe, and under such additional regulations as may be prescribed by the Secretary concerned, limitations may be placed on the powers granted by this article with respect to the kind and amount of punishment authorized, the categories of commanding officers and warrant officers exercising command authorized to exercise those powers, the applicability of this article to an accused who demands trial by court-martial, and the kinds of courts-martial to which the case may be referred upon such a demand. However, except in the case of a member attached to or embarked in a vessel, punishment may not be imposed upon any member of the armed forces under this article if the member has, before the imposition of such punishment, demanded trial by court-martial in lieu of such punishment.

Under similar regulations, rules may be prescribed without respect to the suspension of punishments authorized hereunder. If authorized by regulations of the Secretary concerned, a commanding officer exercising general court-martial jurisdiction or an officer of general or flag rank in command may delegate his powers under this article to a principal assistant.

(b) Subject to subsection (a) of this section, any commanding officer may, in addition to or in lieu of admonition or reprimand, impose one or more of the following disciplinary punishments for minor offenses without the intervention of a court-martial

Commanding officer's nonjudicial punishment is often referred to as captain's mast. Captain's mast gets its name from the old sailing days when the setting for this form of naval justice was the weather deck near the ship's mainmast.

Cases are heard and punishments given at captain's mast. Anyone who is not attached to or embarked in a vessel may, however, demand trial by court-martial in lieu of punishment at mast, before such punishment is imposed. Anyone attached to a vessel may not request trial by court-martial in lieu of captain's mast.

The punishments permitted at captain's mast depend upon the rank of the officer holding mast. Figure 6-3 shows the punishment that may be awarded.

A commanding officer who decides an offense deserves a punishment more severe than he or she is authorized to award at mast may order a court-martial.

The following paragraphs explain some of the punishments that may be given at captain's mast.

RESTRICTION.—Restriction is the requirement to remain within certain specified limits (ship, station, etc.). Although required to muster at certain times, the restricted person usually continues to perform his or her regular duties.

CORRECTIONAL CUSTODY.—Correctional custody is the physical restraint (confinement) of a person during duty or nonduty hours, or both. The person may be required to perform extra duties or hard labor. A typical example is an individual who is free to carry out regular duties during the day but is confined in the brig at night.

CONFINEMENT ON BREAD AND WATER OR DIMINISHED RATIONS.—Confinement on

	Yes	Yes
Confinement on B&W or diminished rations	3 consecutive days (only on E-3 and below, aboard ship) —JAG Man. 0111	3 consecutive days (only on E-3 and below, aboard ship) —JAG Man.
Correctional custody	30 consecutive days (only on E-3 and below) —JAG Man. 0111	7 consecutive days (only on E-3 and below) —JAG Man. 0101
Forfeiture of pay	1/2 of 1 mo. pay per mo. for 2 mo.	7 days' pay
Reduction in grade	To next inferior grade —JAG Man. 0111	To next inferior grade
Extra duty	45 days	14 days
Restriction	60 days	14 days

Figure 6-3.—One or more of the maximum punishments authorized by article 15, *UCMJ*.

bread and water or diminished rations may be imposed only on enlisted persons aboard ship. Correctional custody and confinement on bread and water may be imposed only on enlisted persons below the rank of petty officer.

EXTRA DUTY.—Extra duty is the assignment of any duty (except guard duty) to be performed after the person's regular working hours. Extra duty is not to exceed 2 hours daily or to be performed on holidays. Petty officers may not be assigned extra duties that would demean their grade or position.

FORFEITURE OF PAY.—Forfeiture of pay is a permanent loss of a specified amount or a temporary withholding of a certain amount of pay. The detention period must be specified. The money detained is normally returned at the end of the detention period, but it can be detained for a period of 1 year.

APPEALS.—If persons consider their punishment under article 15 to be unjust or out of proportion to the offense, they may appeal to the next superior authority in the chain of command. The appeal must be made within a reasonable time (generally 15 days) and promptly forwarded. If the superior authority upholds the appeal, all rights, privileges, and property are restored.

PROTECTION AGAINST SELF-INCrimINATION.—Under article 31 of the *UCMJ*, compulsory self-incrimination is prohibited. The accused must be

informed of the nature of the charges against him or her. The accused must also be advised that he or she does not have to make any statement regarding the offense of which accused, but that any statement made may be used as evidence against him or her in a trial by court-martial. No statement obtained through the use of coercion, unlawful influence, or unlawful inducement may be used as evidence against the accused.

MERITORIOUS AND REQUEST MASTS.—Not all masts are for disciplinary purposes. A meritorious mast may be held by the commanding officer to give awards or commendations to those persons who have earned them.

Article 1107 of *Navy Regs* grants the right for any person to communicate with the commanding officer. You can't just walk up to the captain, however, and start talking. Certain times are set aside by the CO for the purpose of hearing valid requests or complaints from crew members. This practice is called request mast. The person having a request or grievance should first try to resolve the problem with the division officer. Failing that, the person may request a mast. Usually, the person will talk to the executive officer first. If the executive officer cannot settle the matter, then the person may see the commanding officer.

Courts-martial

Based on article 16 of the *UCMJ*, courts-martial are of three types: summary, special, and general. The

captain decides the type of court-martial to award based on the nature, time, and place of the offense.

A summary court-martial (SCM) consists of one commissioned officer. If the commanding officer is the only officer with the command, that officer acts as the summary court officer. A summary court can award any sentence that may be given at mast. It can also award the additional punishments of confinement for 1 month and hard labor without confinement for 45 days. Any person awarded a summary court-martial will then be held, as appropriate.

A special court-martial (SPCM) consists of not less than three members. The accused can request that enlisted personnel serve on the court. In that event, enlisted personnel make up at least one-third of the court membership. When a military judge (a qualified lawyer) is detailed to the court, the accused has the right to know the identity of the military judge. The accused also has the right to consult with the defense counsel and to request that the court consist of only the military judge. The request must be in writing, submitted before the court is assembled, and approved by the military judge. A special court-martial may award the same punishment as a summary court, or it may award a more severe punishment. For example, it can award a bad-conduct discharge, confinement for 6 months, loss of two-thirds pay per month for 6 months, and hard labor without confinement for 3 months.

A general court-martial (GCM) consists of a military judge and not less than five members. As in a special court-martial, the accused may request that enlisted personnel serve on the court. Under the conditions described for a special court, the accused may request that the court consist of only a military judge. A general court-martial can award any punishment not forbidden by the *UCMJ*, including death when specifically authorized for the offense.

All accused persons have the right to be represented before special and general courts-martial by defense counsel. This counsel may be a civilian or a military lawyer selected by the accused, or a defense counsel appointed by the convening authority. If a civilian counsel is selected, the accused must pay the counsel's expenses.

SUMMARY

Discipline is training that develops self-control, character or orderliness, and efficiency. *Justice* is impartiality; fairness. *Conduct* is the way one acts; behavior. We all deal with discipline, justice, and conduct in our day-to-day dealings as members of the U.S. Navy.

We have certain standards of behavior, both on and off duty, by which we must abide. Our justice system sets those standards of behavior; therefore, it should not intimidate us.

We also have standards of conduct by which we must abide if we are taken prisoner. These standards are fundamental to our safety and to our fellow prisoners.

Discipline or conduct could sometimes make the difference between saving or losing a unit. Without discipline, ships would not have the efficient fire or repair parties that have kept many of them afloat after major damage. Imagine the panic that would take place if sailors didn't have the discipline, self-control, and efficiency they have been taught.

Our justice system has its own checks and balances. For example, if a person does something wrong, the commanding officer is restricted as to the type of punishment he or she may award. A person also has a right to appeal punishment awarded—a right all people enjoy. A person also has the right to communicate with the commanding officer.

Our justice system protects us. Because of naval regulations and standards of conduct, we know what the Navy expects of us. Our conduct, both on and off duty, should reflect our pride in the Navy and in our unit.

REFERENCES

Manual for Courts-Martial, United States, 1984, Office of the Secretary of Defense, Washington, D.C., 1984.

Standard Organization and Regulations of the U.S. Navy, OPNAVINST 3120.32B, Office of the Chief of Naval Operations, Washington, D.C., 1986.

United States Navy Regulations, 1990, Office of the Secretary of the Navy, Washington, D.C., 1990.

CHAPTER 7

POLICIES AND PROGRAMS

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Recognize the controls for environmental conditions and pollution.
2. Explain the purpose of the Energy Conservation Program.
3. Identify the Sponsor Program requirements.
4. Describe the requirements for the Military Cash Awards Program.
5. Explain the provisions of the Overseas Duty Support Program.
6. Explain the purpose of the Health and Physical Readiness Program.
7. Identify the requirements of the Public Affairs and Community Relations Program.
8. Describe the provisions of the Navy's Integrity and Efficiency Program.
9. Define the standards of conduct and professional ethics.
10. Describe the provisions of the Privacy Act.
11. Define the policy concerning equal opportunity and human rights.
12. Identify the definitions of and the policies regarding sexual harassment.
13. State the policy on fraternization in the naval service.
14. Explain the provisions of the Family Ombudsman Program.
15. Describe the purpose of the Reenlistment Quality Control Program.
16. Recognize the procedures for state and national voting.

This chapter covers some of the policies and programs of the United States Navy. You may be wondering what a *policy* or a *program* is. A policy is an overall plan that contains general goals and broad guidelines. Policy usually establishes the *end* to be attained rather than the *means* of getting there. A program is a plan or system under which action may be taken towards a goal. Programs provide the *means* to reach the *end* stated by the policy. In other words, policies tell where to go; programs tell how to get there.

ENVIRONMENTAL POLLUTION CONTROL

The Navy's ability to accomplish its mission requires daily operations in land, sea, and air environments. The Navy is committed to operating ships and shore facilities in a manner

compatible with the environment. National defense and environmental protection are and must be compatible goals. Therefore, an important part of the Navy's mission is to prevent pollution, protect the environment, and conserve natural, historic, and cultural resources. In order to accomplish this mission element, personnel must be aware of the environmental and natural resources laws and regulations which have been established by Federal, state, and local governments. The Navy chain of command must provide leadership and a personal commitment to ensure that all Navy personnel develop and exhibit an environmental protection ethic.

Environmental pollution is the altering of the natural environment in an adverse way. Pollution can result from the presence of chemical, physical, or biological agents in the air, water, or soil. Some of the worst effects of pollution are economic loss (agricultural and industrial), fewer recreational opportunities, and the marring of the earth's natural beauty. Pollutants affect human health and comfort, fish and wildlife, plant life, water resources, physical structures, and equipment. In other words, environmental pollution results from any substance added to our water, air, or land that makes it less fit for use by plants, animals, or human beings.

SOURCES OF POLLUTION

Nature contributes in some degree to pollution through occurrences such as soil erosion that silts the streams and volcanic eruptions that pollute the atmosphere. However, people cause most of the pollution problems of the world. The main sources of pollutants are agricultural, industrial, municipal, and transportation operations.

Agricultural pollutants include insecticides, herbicides, pesticides, natural and chemical fertilizers, drainage from animal feedlots, salts from field irrigation, and silts from uncontrolled soil erosion.

Industrial operations produce a wide variety of pollutants. Those pollutants include acids from mines and factories, thermal discharges from power plants, and radioactive wastes from the mining and processing of certain ores. Industries create pollutants through the production of food, chemicals, metals, petroleum products, and poisons and through countless other by-products of our country's technology.

The primary municipal pollutants are raw or inadequately treated sewage. Other municipal pollutants include refuse, storm-water overflows, and salts used on streets in wintertime.

Transportation pollutants include emissions from aircraft, railroad rolling stock, and waterborne vessels as well as automobiles and trucks. Motor vehicles create most of our air pollutants through their release of unburned fuel vapors (hydrocarbons).

Oil becomes a pollutant when ships spill it during refueling operations or as a result of collision or grounding. Several million gallons of oil may blacken miles of coastline as a result of such accidents.

EFFECTS OF POLLUTION

Pollution produces physical and biological effects that vary from mildly irritating to lethal. The most serious of the two is the biological effects.

Physical Effects

The physical effects of pollution are those which we can see, but they include effects other than actual physical damage.

One of the most obvious physical effects of pollution is the result of oil spills by ship collisions or other accidents. Oil spilled into the seas coats everything it touches. It fouls boat hulls, pier pilings, and shore structures; spoils the beauty of nature; and makes beaches unusable. In addition to the physical effects, oil spills require costly cleanup operations.

Air pollutants damage a wide variety of materials. Sulphur oxides, produced by the burning of oil and coal, cause steel to erode two to four times faster than normal. When combined with other pollutants (soot, smoke, lead, asbestos, and so on), particulates cause even greater corrosion rates. By themselves, particulates damage and soil materials, structures, and equipment. Air pollutants speed the erosion of statues and buildings, causing, in some instances, works of art to be moved indoors for protection.

Biological Effects

The most serious result of pollution is its harmful biological effects on human health and on the food chain of animals, birds, and marine life. Pollution can destroy vegetation that provides food and shelter. It can seriously disrupt the balance of nature, and, in extreme cases, can cause the death of humans.

Pesticides, which include herbicides and insecticides, can damage crops; kill vegetation; and poison birds, animals, and fish. Most pesticides are nonselective; they kill or damage life forms other than those intended. For example, pesticides used in an effort to control or destroy undesirable vegetation and insects often destroy birds and small animals. Some life forms develop an immunity to pesticides used to destroy them. When that happens we develop more potent chemicals, and the cycle repeats itself.

The widespread use of pollutants, such as oil, chemicals, and fertilizers, pollutes our waterways. The biological effect of water pollution is its danger to our water supplies and all forms of marine life. Oil is an

especially harmful pollutant. It kills surface-swimming animals and sea birds and, once it settles on the bottom, harms shellfish and other types of marine life.

The primary pollution concern of Navy personnel involves pollution produced by shipboard wastes. In addition to oil, shipboard wastes include sanitary wastes, galley and laundry waters, chemicals, solid wastes, and combustion by-products of oil- and gasoline-driven engines. Pollutants produced by ships are similar to those generated by municipal and industrial operations.

NAVY PROGRAMS FOR POLLUTION CONTROL

Based on an Executive order, all government agencies must provide leadership in the protection and enhancement of the quality of our air and water resources. They also must comply with all environmental laws and regulations. Accordingly, the Secretary of the Navy, the Chief of Naval Operations, and other authorities have issued several pollution control instructions. Those instructions cover the abatement (lowering) of air and water and noise pollution. In addition, we have a program to preserve our natural, cultural, and historic resources.

Clean Air Act

Under the Clean Air Act, each state has the primary responsibility for assuring air quality. All naval activities must meet both federal and state standards for preventing air pollution.

The Navy has begun taking steps to help meet the nation's goal of reducing air pollution. One step has been the conversion of its power plants ashore and afloat to use more efficient pollution control systems for stack emissions.

All naval activities, when practical, have converted their vehicles to use unleaded gasoline. When required by state or local regulations, activities have set up a program for monitoring and analyzing the exhaust from each vehicle. Vehicles that do not meet emission standards must have corrective maintenance before being returned to service.

Clean Water Act

The Clean Water Act, as amended, represents a clear goal to restore and maintain the chemical, physical, and biological integrity of the nation's waters.

To help reach that goal, the Navy uses municipal treatment plants where possible for its waste water and sewage. Whenever use of a municipal facility is impractical, the Navy provides for the installation and operation of its own waste-water treatment and disposal systems.

Operators of municipal treatment plants must meet the operator-certification requirements of the state in which the Navy facility is located.

The Navy complies with water pollution control standards that govern the types of pollutants that can be introduced into a treatment facility.

The Navy has installed marine sanitation devices (MSDs) aboard virtually all of its ships. Some of those devices treat sewage to a level acceptable for overboard discharge. Others (collection, holding and transfer [CHT] systems) retain sewage on board for later discharge ashore or in waters in which discharge is allowed. No untreated or inadequately treated sewage may be discharged into navigable waters of the United States. In foreign waters, Navy vessels comply with the applicable Status of Forces Agreement (SOFA) in operating MSDs. If no SOFA exists, vessels operate MSDs based on the sewage-discharge standards observed by the host country's military forces.

Navy vessels may not discharge hazardous substances in harmful quantities into or upon navigable waters of the United States. They also may not discharge those substances upon adjoining shorelines or into or upon waters of the contiguous zone (12 nautical miles [nm] from shore). Since Navy vessels use many substances they cannot dispose of at sea outside the contiguous zone, they must store them in containers for shore disposal.

Vessels may not discharge unpulped trash at sea within 25 nautical miles (nm) from the United States coastline and pulped trash within 12 nm of the U.S. coastline. They must make every effort to package all trash for negative buoyancy before overboard discharge. Submarines may discharge negatively buoyant compacted trash not less than 12 nm from the U.S. coastline only if the water depth is greater than 1,000 fathoms. Vessels may not discharge any trash within 25 nm of any foreign coastline.

Overboard discharge of plastic waste material will be totally eliminated by December 1993.

environmental noise reduction. Therefore, whenever feasible, the Navy procures low-noise emission products and provides soundproofing of Navy-owned/operated schools and hospitals affected by noisy operations. It also locates housing and other developments away from major noise sources and cooperates with and in support of neighborhood self-help programs. Aviation facilities consider remote siting, sound suppression equipment, and sound barriers when developing new systems. To the extent possible, the Navy limits the use of noisy tools, machinery, and equipment to normal working hours.

Afloat, the design of new ship systems and equipment will reduce noise emissions. The government does not prescribe retrofit (modifications) for existing noise sources. It also exempts military aircraft, combat equipment, and weapon systems from new noise design standards.

NATURAL, HISTORIC, AND ARCHEOLOGICAL RESOURCES PROTECTION

In keeping with federal programs, the Navy has established programs, suitable to its military mission, for the preservation of natural, cultural, and historic resources. The Navy programs consist of land management, forest management, fish and wildlife management, outdoor recreation, and general support for all land under naval jurisdiction.

Land management includes soil and water conservation, land restoration, noxious weed and poisonous plant control, agricultural lands leasing, range management, landscaping, and grounds maintenance.

Forest management includes the production and sale of forest products for multiple-use and sustained-yield principles.

Fish and wildlife management includes marine mammals protection, migratory fish protection, game and nongame species management, and animal damage control.

Outdoor recreation involves the protection of nature through programs such as migratory bird management, endangered species protection, and preservation of the earth's natural beauty. Recreation programs include the

nature. Those involving people include youth programs, public participation, and cooperative agreements with public agencies. Those involving nature include resources inventory, conservation awards, coastal area management, wetlands protection, flood plain management, natural areas preservation, and animal disease eradication.

ENERGY CONSERVATION PROGRAM

Most of the Navy's ships and all of its aircraft use petroleum-based fuel. In addition, the Navy's vehicles used for ground transportation, such as automobiles, trucks, and buses, also use petroleum. That gives you an idea of how much the Navy depends on petroleum—without it, the Navy couldn't move. Navy bases also use petroleum fuel for heating and running electric plants.

We get most of our petroleum in the form of crude oil from the Middle East countries. We cannot rely on oil from that area indefinitely because of the political unrest that exists there. Besides, only so much oil exists in the earth. Therefore, we must conserve as much of our petroleum resources as possible.

The Navy's policy on energy conservation is that it will make all possible efforts to improve the way it uses energy resources. The Navy will not compromise readiness, effectiveness, or safety in its energy conservation efforts. One of the Navy's energy conservation goals is to ensure it provides the fleet with enough fuel to sustain peacetime and combat operations. Another objective is to reduce energy costs and dependency on unreliable energy sources while conserving petroleum.

You can help to conserve our energy resources by reporting wasteful practices to your supervisor or leading petty officer (LPO).

NAVY SPONSOR PROGRAM

The Chief of Naval Operations set up the Navy Sponsor Program to ease the relocation of naval personnel and their families when transferred or permanent change of station (PCS) orders. The program has aided thousands of Navy families, even though the full potential of the program has not been realized. Current efforts are under way to expand the program.

case of PCS orders to or from any activity.

2. In all other cases, individuals should request assignment of a sponsor through the use of the sponsor request form, NAVPERS 1330/2, entitled Navy Sponsor Notification.

3. School commands are developing procedures to provide home port and/or country information packages or packets to all personnel being transferred on PCS orders, especially first-term members.

If you are being transferred on PCS orders, desire a sponsor, and have not heard from your new command, request assignment of a sponsor using the sponsor request form, NAVPERS 1330/2.

If you are assigned as a sponsor for a fellow naval member who is scheduled to transfer to your location, fully accept the responsibility of sponsorship. You can help make the difference between a good move and a bad one for the person being transferred as well as for that person's family. Using the following checklist may help you be a better sponsor:

SPONSOR CHECKLIST

1. Write a "welcome aboard" letter to your new shipmate. Include the following points:
 - a. Introduce yourself and give a warm welcome aboard.
 - b. Include a copy of the rental and for sale ads from the local paper in any correspondence with the new member.
 - c. Provide the member information on how he or she may contact you (your home address and telephone number).
 - d. Ask him or her about dependents (if they will accompany the member, their mode of transportation, ages, and so on).
 - e. Ask him or her to keep you posted on travel and arrival plans. You are required to keep the sponsor program coordinator and pay/personnel administrative support system (PASS) officer informed of any changes the member may make.
2. Provide follow-up letters or phone calls to answer any questions the new member may have.

4. Before the member's arrival, check on the housing availability. Inform the member if housing will be available upon reporting or if he or she may need to make arrangements for temporary lodging. Help the member with arrangements if necessary. (Make sure the new member checks in with the housing referral office before renting or buying a house. That is a must.)
5. Escort the individual through the process of checking in.
6. Help the member locate the personal property office to check on household goods and private auto shipments. That may be done before the member reports in for duty.
7. Provide a tour of the base and local area if the member desires.

MILITARY CASH AWARDS PROGRAM

The Military Cash Awards Program (MILCAP) is a special incentive awards program. It is designed to find new ideas to effectively increase performance within the Department of the Navy. The program has been responsible for important savings.

MILCAP provides monetary recognition awards of up to \$25,000. It awards personnel for beneficial suggestions, inventions, and scientific achievements that increase efficiency, economy, or productivity or effect other improvements in operations. All active-duty military personnel are eligible to participate in MILCAP.

A beneficial suggestion is the proposal of an idea or a method of doing a task better, faster, cheaper, or safer. An individual or a group can submit a beneficial suggestion. To qualify for the MILCAP, the suggester must show a specific need for improvement and give a workable solution. The suggestion should also be beyond the suggester's normal job capability. Suggestions should do one or more of the following:

- Improve services to the fleet
- Increase productivity
- Conserve energy, manpower, materials, time, or space
- Reduce costs without loss of quality or efficiency

Perhaps you have an idea worthy of a cash award. Submit your suggestion in writing, either on a suggestion form or in a letter format, to your local MILCAP administrator. OPNAV Instruction 1650.8C contains additional information about the MILCAP.

OVERSEAS DUTY SUPPORT PROGRAM

The Overseas Duty Support Program (ODSP) provides information and support to help personnel who are guests in foreign lands. Whether you find yourself in a foreign country as a result of a PCS or a deployment, the ODSP will provide you with information about the country you are visiting.

When visiting a foreign country, always remember you are a guest in that country. As a guest you should respect the local customs and make every attempt to avoid getting into trouble. If possible, try to learn and use the local language, especially if you are stationed in that country.

Be careful about taking pictures or recording anything without the permission of the people around you. Most police (or even passersby) will forbid you to take pictures of sights such as government buildings, no matter how illogical that may seem. Some people will not want you to take their pictures for religious reasons. Some may feel you are making fun of them. They may think you will show the pictures to your friends back home as an example of how "backward" or "primitive" they are.

Dress comfortably, but be careful of your appearance. A woman in shorts is a "no-no" in many countries, and even a woman in slacks can upset people in some rural or conservative areas. A man in shorts can give the impression of insensitivity.

Unless you are similar in appearance to the people in the country you are visiting, they will likely stare, shout, giggle, and point at you, especially in out-of-the-way places. The people of most countries will usually shower attention upon you good naturally. If you smile and accept the attention good naturally, your hosts will make you feel welcome. If you resent it and get angry, your hosts will be confused and displeased.

Even though you look different than the local people, if you can manage a few words in the local language, you will reap many benefits. You will see taxi fares miraculously drop, room service drastically improve, and art objects sell for less. The people will

receive you more warmly and genuinely than if you had spoken English.

Knowing some basics about the country you are visiting and its culture goes a long way towards helping you have a good time. Before the trip, read all you can about each country you will visit. Look at various publications that contain information about the countries or regions you will be touring. *Africa Report*, for example, is a magazine that offers much insight about the culture of that continent. If your library doesn't have a specific magazine, you can order it from the publisher. You will find the addresses of magazine publishers in your local library.

You may also get information on other countries by contacting the Overseas Transfer Information Service (OTIS). OTIS personnel will provide you with up-to-date information on the country you will be visiting. Telephone numbers for OTIS are as follows: Commercial-(703) 746-5932/34, AUTOVON-286-5932/34, or toll free-1-800-327-8197.

When you visit the many towns, villages, and cities of other countries, you'll discover what so many of us have found: the unexpected hospitality and warmth of the people.

HEALTH AND PHYSICAL READINESS PROGRAM

People in the Navy and in the civilian community share a common problem-excessive body fat. It usually results from sitting all day at a desk job, eating too much, and getting too little exercise. Excessive body fat spoils our health, longevity, stamina, and military appearance. Maintaining good health and physical readiness helps to keep us combat ready, make us personally effective, and give us high morale.

The Navy's Health and Physical Readiness Program promotes active health and fitness at the command level. The program includes semiannual testing of all personnel to make sure they perform to certain standards. It provides educational programs that help personnel who do not meet the Navy's fitness or body fat standards. It also helps personnel who want to change long-established bad health habits to improve their fitness.

PUBLIC AFFAIRS AND COMMUNITY RELATIONS PROGRAM

Public affairs works on the principle that the public has the right to be fully informed about matters of national defense.

In the Department of the Navy, the mission of public affairs is to inform the public and members of the naval service about the following:

- The Navy as an instrument of national policy and security
- Navy operations and programs
- The responsibilities and activities of naval personnel as United States citizens

An objective of public affairs is to better the general public's understanding of the following:

1. The nature of sea power and its role in preserving the security of the United States
2. The reasons underlying the need for an efficient and effective modern Navy
3. The contributions of the Navy in scientific research and in community assistance
4. The service naval members provide to their country
5. The career advantages of naval service

The Navy is a part of the community in which its facilities or personnel are located. The attitude the civilian community has towards Navy personnel affects their morale and effectiveness. Therefore, all Navy personnel are responsible for maintaining good community relations. They can help to do that by taking an active part in civilian activities and organizations. In addition, each command develops a Community Relations Program to ensure Navy personnel and the civilian community live in harmony.

For more information about the Public Affairs and Community Relations Program, see SECNAVINST 5720.44A, chapter 2.

INTEGRITY AND EFFICIENCY PROGRAM

The Integrity and Efficiency (I&E) Program carries out the Department of the Navy's policy to detect, deter, and eliminate fraud, waste, abuse, and mismanagement. The terms fraud, waste, abuse, and mismanagement are defined as follows:

Fraud Intentional misleading or deceitful conduct that deprives the government of its resources or rights

Waste The extravagant, careless, or needless expenditure of government resources

Abuse The intentional wrongful or improper use of government resources

Mismanagement To manage incompetently or dishonestly

You report fraud, waste, abuse, and mismanagement through any of the following:

- Chain of command
- Navy hotline
- Naval Investigative Service (NIS)
- Congressional communication (writing your congressmen)

STANDARDS OF CONDUCT AND PROFESSIONAL ETHICS

The Department of the Navy's ability to maintain public confidence in its integrity is essential to the performance of its mission. To help maintain that integrity, all naval personnel must comply with the following standards of conduct:

- Avoid any action, whether or not specifically prohibited, that might result in or reasonably be expected to create the appearance of the following:
 - Using public office for private gain
 - Giving preferential treatment to any person or entity
 - Impeding government efficiency or economy
 - Losing complete independence or impartiality
 - Making government decisions outside official channels
 - Adversely affecting the confidence of the public in the integrity of the government

- Do not engage in any activity that might result in or reasonably be expected to create the appearance of a conflict of interest.
- Do not accept gratuities from defense contractors.
- Do not use your official position to influence any person to provide any private benefit.
- Do not use your rank, title, or position for commercial purposes.
- Avoid outside employment or activity that is incompatible with your duties or may bring discredit to the Navy.
- Never take or use government property or services for other than officially approved purposes.
- Do not give gifts to your superiors or accept them from your subordinates.
- Do not conduct official business with persons whose participation in the transaction would be in violation of law.
- Seek ways to promote efficiency and economy in government operation and public confidence in its integrity.

For more information consult SECNAVINST 5370.2H.

PROVISIONS OF THE PRIVACY ACT

The Privacy Act primarily protects the rights of personal privacy of people about whom records are maintained by agencies of the federal government. To maintain records on people without prior announcement in the Federal Register is unlawful.

Keeps only that personal information about others needed to do what law requires. Do not disclose information about a person to any unauthorized person. If you make an unauthorized disclosure, you may be fined up to \$5,000. If you maintain records on your fellow Navy member, you have an obligation to protect this information from unauthorized disclosure.

EQUAL OPPORTUNITY IN THE NAVY

Equal opportunity shall be afforded to all on the basis of individual effort, performance, conduct, diligence, potential, capabilities and talents without discrimination as to race, color, religion, creed, sex or national origin. Naval personnel shall demonstrate a strong personal commitment to stand on these principles and carry them out.

-Navy Regulations, Article 1164

The key word in the title of this section is EQUAL. Real democracy cannot exist if our society does not have equal opportunities for all of its people. Our society, a democratic society, does not attempt to make everyone equal, because equality cannot be legislated. However, the law can serve to ensure everyone receives equal treatment.

Personnel in the Navy come from all parts of the United States and from other countries. They bring with them views common to their racial, social, and economic backgrounds.

For many years, the official policy of the Department of the Navy has been one of equal treatment and opportunity for all personnel, regardless of race, color, creed, sex, or national origin. The Navy carries out that policy through the Command Managed Equal Opportunity program. The Chief of Naval Operations (CNO) provides the guidance and policy for that program.

COMMAND MANAGED EQUAL OPPORTUNITY

Command Managed Equal Opportunity (CMEO) is the Navy's equal opportunity program. The Navy requires all commands to set up a CMEO program. CMEO allows the commanding officer (CO) to create and maintain a positive equal opportunity (EO) environment. CMEO also allows commands to identify and resolve command-level equal opportunity problems and concerns. Commands can closely monitor EO issues while remaining flexible to their own needs and using only the manpower required for any given situation. Commanding officers must make equal

PERFORMANCE EVALUATION IN EQUAL OPPORTUNITY

The Navy evaluates every Navy member's support of the equal opportunity program. Personnel in paygrades E-1 through E-9 receive numeric grades, based on a 4.0 scale, on overall annual performance evaluations of specific traits. Your performance evaluation will reflect your attitude and conduct toward support of the Navy's equal opportunity program.

PROCEDURES CONCERNING INSENSITIVE PRACTICES

When people enter the Navy, they have formed different feelings, attitudes, prejudices, and ideas based on their individual personal backgrounds. To ensure teamwork and to fulfill the Navy's mission, they must put aside their personal feelings, attitudes, prejudices, and ideas in their behavior towards others. Commanding officers take proper action to correct insensitive practices such as prejudicial treatment based on race, creed, color, sex, age, or national origin. Personnel who take part in insensitive practices receive counseling concerning their responsibilities in regard to equal treatment. If such counseling is not effective or if further action is warranted, those personnel may receive administrative or disciplinary action or both.

DUTY ASSIGNMENTS

The unfair assignment of general administrative and support duties (food service, compartment cleaning, and work details) outside the normal requirements of a rating frequently lowers morale. It also weakens the efficiency and overall effectiveness of a command.

Based on Navy policy, supervisors should assign work not included in a specific rating on a fair, rotational basis. They should make such assignments without regard to race, creed, color, sex, age, or national origin. Although supervisors may consider the seniority of personnel in detailing such duties, they must make positive efforts to ensure fair treatment.

Assignment to duty on ships or stations should also comply with the Navy's equal opportunity goals. Women officers and enlisted personnel may serve aboard hospital ships, transports, and certain other

period. Although federal law prohibits women from serving in combat, legislation has been proposed that would open up most combat ratings to women.

PROFESSIONAL TRAINING AND ADVANCEMENT

The Navy expects everyone who enters the naval service to increase his or her knowledge and skills. Your command will provide the necessary training to enable you to develop a skill and properly prepare yourself for advancement. Advancement is an individual effort. How far you can advance depends primarily upon your own initiative, capabilities, and qualifications.

The Department of the Navy sets the requirements for advancement for paygrades E-1 through E-9. However, meeting all the requirements does not guarantee advancement. Only the most qualified will be advanced, and they will be advanced only if vacancies exist for that paygrade. Improving yourself, your skills, and your education increases your chance for advancement.

MILITARY JUSTICE

To assure equal justice and treatment, your command will continuously review charges, dismissed cases, issued warnings, and all nonjudicial punishment procedures. Such reviews detect racial, religious, ethnic, cultural, or sexual bias affecting either the accusing or the punishment phase of military justice.

SERVICE AND RECREATIONAL FACILITIES

Service and recreational facilities must meet the needs of all segments of the Navy community. Commands must pay special attention to the possibility of discriminatory practices in the operation of exchanges, commissaries, service clubs, and recreational facilities. Segregation, lack of tolerance of cultural preferences, or discriminatory practices in command facilities is inconsistent with equal opportunity.

Navy exchange facilities provide a variety of products. These products include items purchased by minority and female personnel and dependents, such as special categories of cosmetics, books, magazines, and

HOUSING REFERRAL OFFICE

The Department of Defense (DOD) has established housing referral offices (HROs) at locations with large concentrations of military families. It has also established HROs at locations where housing discrimination may exist because of race, color, creed, or national origin.

The Navy requires that all personnel offices include the following statement in orders for detachment and TAD of more than 30 days in any one place:

You are directed to report to the appropriate Housing Referral Office prior to negotiating any agreement for off-base housing.

The HRO provides information about government housing and the type, cost, and availability of private housing. It also gives general information on schools, shopping, and other community services.

The HRO also maintains a list of facilities banned as housing for military personnel because of discriminatory practices.

Department of the Navy policy supports the Federal Fair Housing legislation through its efforts to ensure equal opportunity for available housing. It makes every effort to eliminate off-base housing discrimination toward DOD personnel because of sex, race, color, religion, or national origin. It tries to ensure DOD personnel who meet ordinary standards of character and financial responsibility can obtain off-base housing as easily as any other person.

EQUAL OPPORTUNITY OFF BASE

Discrimination in the civilian community has an adverse effect on the welfare and morale of military personnel and their dependents. Consequently, it is harmful to the military effectiveness of a command. Dealing with discrimination in the civilian community is more difficult than within a command. However, the Navy deals affirmatively with such problems to ensure equal treatment for service members and their dependents in nearby communities.

Commands can take a number of actions to promote equal opportunity for its members in the civilian community. At some installations, problems of mutual

make every effort to eliminate off-base discrimination for military personnel and their dependents.

Military personnel moving into or changing their place of residence may not enter into rental, purchase, or lease arrangements with facilities under restrictive sanctions. However, such sanctions do not apply to personnel who may be residing in the facility at the time the sanction is imposed. Personnel who intentionally, and contrary to instructions, take residence in restricted facilities are subject to disciplinary action and loss of basic allowance for quarters (BAQ).

Equal opportunity also applies to public facilities, such as schools, parks, playgrounds, libraries, and hotels. Any person who receives discriminatory treatment in such places can seek relief through military or civilian channels. Normally, you should go through military channels (your chain of command). That gives your command the opportunity to try to get the facility to comply with the law.

As mentioned in chapter 1, the First Amendment of the Constitution guarantees you the rights of freedom of speech and assembly. That means you can attend civil rights demonstrations and similar gatherings. However, service members have several conditions attached to their participation in such demonstrations. Navy personnel cannot take part in civil rights demonstrations while wearing their uniform or during duty hours. Navy personnel cannot take part in a civil rights demonstration held on a military reservation or in a foreign country. Navy personnel cannot take part in demonstrations that violate law and order or that could reasonably be expected to result in violence.

DISCRIMINATION COMPLAINT PROCEDURES

Apart from their individual merits, legitimate complaints can provide valuable information about the existence of discriminatory treatment within a command. Positive action in cases where complaints are found to be valid lends credibility to your command's stated commitment to ensure equal treatment and justice.

No matter how badly they are treated, many personnel feel reluctant to express grievances to their seniors. *Navy Regulations* and the *U.S. Navy Equal Opportunity Manual* guarantee personnel the right to

Special Request Chit

When you cannot resolve a complaint among the persons involved or with the help of a supervisor (your LPO or division CPO), submit a special request chit as your first course of action. Attach a written complaint to the special request chit and submit it through the chain of command within 5 working days of the incident. You do not have to follow any special format in writing a discrimination complaint. However, you should fully explain the complaint and include all facts.

Captain's Mast Request

As a Navy member, you have the right to speak with the commanding officer to voice a complaint or get help in resolving a problem. Request captain's mast only if the first course of action (allowing the chain of command to correct the problem) fails or if the problem is so crucial that it demands immediate action. A captain's mast request requires each person in the chain of command to forward the request—whether or not the request is approved.

FALSE DISCRIMINATION COMPLAINTS

All naval personnel should be aware that intentional filing of false discrimination complaints is just as serious as discrimination itself. The Navy does not tolerate the filing of false discrimination plaints simply for the harassment or embarrassment of officers or enlisted personnel.

The Navy applies the same administrative and disciplinary actions to personnel who file false complaints as it does to those who discriminate.

SEXUAL HARASSMENT

All military and civilian personnel in the Department of the Navy have responsibilities. One of those responsibilities is to maintain high standards of honesty, integrity, and conduct to assure proper performance of business and to maintain public trust. Sexual harassment violates those standards, especially in regard to principles of equal opportunity. With sexual harassment, both males and females can be victims or harassers.

Deliberate or repeated offensive comments, gestures, or physical contact of a sexual nature in a work-related environment.

The United States Navy does not condone or tolerate sexual harassment. It is an unprofessional and unmilitary form of discrimination. It adversely affects morale; discipline; and, ultimately, the mission effectiveness of the command involved.

Persons who feel they are being sexually harassed should report the situation to the appropriate supervisory level. The supervisor will examine the matter and take needed actions to ensure the work environment is free from sexual harassment.

Substantiated complaints will result in swift and appropriate disciplinary action.

FRATERNIZATION

Personal relationships between unduly familiar Navy members can violate long-standing traditions of the naval service. Those relationships could exist between officers, officer and enlisted personnel, or between enlisted personnel. A direct senior-subordinate supervisory relationship is inappropriate and prejudicial to good order and discipline. Violations of fraternization among Regular and Reserve personnel may result in administrative or punitive action.

FAMILY OMBUDSMAN PROGRAM

The Ombudsman is the link between the command and the families of command personnel. The commanding officer appoints the Ombudsman after consultations with various advisors, such as the executive officer, command master chief, and presidents of various wives clubs.

The Ombudsman performs varied services, such as keeping the CO informed about family morale and problems families are facing. The Ombudsman also informs the CO of organizations available to assist families needing different services.

The Ombudsman keeps the families informed about command policies. Sailors who know their families have a reliable person to call in case of problems can concentrate more fully on their job. The Ombudsman is an integral part of the command structure.

REENLISTMENT QUALITY CONTROL PROGRAM

The Reenlistment Quality Control Program sets standards personnel should meet to be eligible to reenlist. The program uses reenlistment codes to indicate whether personnel have met those standards.

Reenlistment codes reflect the quality control category and the status of personnel who separate from the Navy (do not reenlist). If you do not reenlist at your end of active obligated service (EAOS), your DD 214 form (Certificate of Release/Discharge from Active Duty) will indicate your reenlistment code. If you decide to reenlist later on, the reenlistment code will indicate whether or not you are qualified to reenlist.

STATE AND NATIONAL VOTING PROCEDURES

The most important requirement for preserving freedom in a democratic society is full access to the ballot by all citizens of voting age. Department of the Navy policy is to ensure its members, their spouses, and their dependents may register and vote in all elections within their home districts .

The Chief of Naval Personnel directs and supervises the Navy's voting program. The voting program makes sure all ships and stations receive voting information pamphlets, posters, and materials. All eligible personnel receive in-hand delivery of the Federal Post Card Application for Absentee Ballot (FPCA), standard form 76, revised 1987, for all federal elections. They receive the ballots well in advance of the November election.

The recommended delivery time for overseas areas is 15 August and for stateside personnel 15 September.

SUMMARY

Since the Navy is such a large, diverse, and complex organization, it requires numerous programs to help its members resolve a wide variety of problems. For example, the Command Managed Equal Opportunity program makes sure Navy members have the same basic rights all other citizens in our society enjoy.

Department of the Navy policies govern our day-to-day operations by requiring us to perform to certain standards. Those policies give us a general goal and the guidelines to achieve that goal. Those policies and the programs that support them ensure Navy personnel know how to do their jobs and where to find help to resolve their problems.

REFERENCES

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HUMAN RESOURCES

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe the rights, privileges, and benefits of dependents of service members.
2. Identify the methods needed to manage personal finances.
3. Explain the benefits of government insurance.
4. Define the various military pay entitlements.
5. Identify the contents of the Leave and Earning Statement.
6. Interpret the procedures and regulations governing leave and liberty requests.
7. Explain the purpose of and procedures for preparing leave and liberty requests.
8. Recognize the various opportunities for education and training.
9. Identify the programs that lead to a commission in the naval service.
10. State the policy regarding the Navy's Drug and Alcohol Abuse Program.
11. Define personnel responsibilities and the consequences of drug and alcohol abuse.
12. Explain the reasons for the various types of discharges.
13. Describe the consequences of various types of discharges.
14. State the requirements for the Navy Good Conduct Medal.

This chapter deals with the benefits, privileges, and rights of service members and their dependents. The old adage "the Navy takes care of its own" is true. In addition to programs designed to benefit the service member, we have programs specifically designed for their dependents. Two of these programs are the Family Support Program and the Morale, Welfare, and Recreation Program. Dependents also have Navy exchange and commissary privileges.

The policy of the Navy is to ensure dependents of service members are able to locate and receive assistance for all difficulties that may arise. The Navy is concerned about the well-being of dependents. It knows if dependents are taken care of, service members will worry less and, therefore, be able to concentrate more on their assignments.

The programs covered in this chapter are not all-inclusive. Many programs exist that are not mentioned here. If you or your dependents have a problem, check with your supervisor about the various programs through which you might find help. Your

supervisor should be able to point you in the right direction.

PERSONAL FINANCIAL MANAGEMENT

Financial problems are the root cause of many of our social problems, such as alcoholism, drug abuse, and spouse or child abuse. Getting into financial difficulty is easy. Sometimes it starts with an unexpected family emergency. Most of the time, though, it results from an inability to manage money. No training in managing money and easy credit help to start a cycle of growing bills and less money to pay them.

If you have experienced any of the following signs, you may need some help in learning how to manage your money:

- You don't know where your money goes and you can't pay all your monthly bills.
- You have no money for emergencies.

- You are forced to charge items you usually pay cash for.

If you feel yourself sinking into financial trouble, seek help early before disaster overtakes you. Go to your supervisor, leading petty officer (LPO), or division officer for starters. Many Family Service Centers as well as the Navy Relief Society offer financial counseling.

GOVERNMENT-SUPERVISED LIFE INSURANCE

The government has provided premium-free or low-cost life insurance for service members and veterans since World War I. Since 1919, various insurance programs have been offered as insurance needs have changed over the years.

SERVICEMEN'S GROUP LIFE INSURANCE

Servicemen's Group Life Insurance (SGLI) is a low-cost group insurance program open to active-duty personnel without regard to special qualifications, such as disability.

You may secure SGLI only in increments of \$10,000, up to a maximum of \$100,000. You are automatically issued the \$100,000 coverage, unless you choose a lower amount.

The cost of SGLI is deducted automatically from your pay. You are charged \$.80 per \$10,000 of coverage per month.

Unlike some commercial insurance policies, SGLI has no loan, paid-up, or cash-surrender value. In other words, you cannot borrow money against this insurance; if you stop payment on the policy or cancel it, you will receive neither paid-up insurance nor cash.

SGLI coverage continues for 120 days after your separation. If you are separated for a disability, coverage may be extended up to 1 year after your separation date.

VETERANS GROUP LIFE INSURANCE

The Veterans Insurance Act of 1974 established a program of post-separation insurance called Veterans Group Life Insurance (VGLI). That act provides for the automatic conversion of SGLI to a 5-year nonrenewable term policy at reasonable rates and with a "no physical exam" advantage. That is, you can have insurance coverage at reasonable rates for 5 years after you separate from the Navy. You can convert the policy at any time during that 5 years to a commercial insurance policy with the same amount of coverage without a

physical examination. Like SGLI, the Office of Servicemen's Group Life Insurance (OSGLI) administers the VGLI program, and the Veterans' Administration supervises it.

You can get VGLI coverage in amounts equal to, but not exceeding, the amount of SGLI in force at the time of your separation. This insurance, like SGLI, has no cash, loan, paid-up, or extended insurance value.

MILITARY PAY SYSTEM

The military pay system affects you directly. The amount you receive every payday is determined by the military pay system. Therefore, you should have a basic understanding of the difference between pay and allowances and the different types of pay and allowances. You should also understand a little about allotments and government insurance.

In this section, we will present some basic information on the military pay system. Because the system is very complex and amounts of various pay and allowances are subject to change, you should consult your disbursing office for specific information concerning your pay.

PAY

Pay is money paid to you for services rendered. All pay is taxable as income. The Navy has three types of pay: basic pay, incentive pay, and special pay. You may receive all three types of pay if you are qualified, or you may receive only basic pay.

Basic Pay

Basic pay is the pay you receive based upon your paygrade and your length of service. All people on active duty in the Navy receive basic pay.

Navy personnel receive longevity (length of service) raises after 2, 3, and 4 years of service. In general, they receive a longevity raise for every 2 years of service after that. Personnel in paygrades E-1 and E-2 do not receive longevity raises. An E-3 does not receive longevity raises after 4 years of service. Length of service for pay purposes includes active-duty and inactive Reserve time, former service (if you have a broken-service enlistment), and service in other branches of the U.S. armed forces.

Incentive Pay

Incentive pay is pay you receive for certain types of duty. These types of duty are usually considered hazardous. Therefore, incentive pay is sometimes referred to as hazardous duty pay. Duty for which you may receive incentive pay includes aviation duty, submarine duty, parachute duty, flight deck duty, demolition duty, and experimental stress duty.

You receive incentive pay based on the following guidelines:

1. You may receive a maximum of two incentive pays if you meet the requirements for more than one.
2. You may not receive incentive pay if you receive special pay for diving duty. (Special pay is covered next.)
3. You receive the same basic rate of pay for all types of incentive pay with the exception of aviation duty and submarine duty pay, which vary according to your paygrade and longevity.

Special Pay

Special pay is pay for special circumstances, such as reenlistment, or a particular type of duty. Duty for which you may receive special pay includes foreign duty, sea duty, medical duty, special assignment duty, hostile fire duty, and diving duty. You may also receive special pay in the form of a selective reenlistment bonus (SRB).

ALLOWANCES

An allowance is money used to reimburse you (pay you back) for expenses necessary for you to perform your job. Because they are reimbursements for expenses, allowances are not taxable as income.

You receive allowances for expenses such as clothing, quarters, and food. You may also receive allowances for various other expenses.

Clothing Allowance

Enlisted members of the Navy, including Naval Reservists on extended active duty, normally receive an initial allowance for uniforms. You may receive a clothing allowance by two methods. First, you may receive a reimbursement of cash for your purchases of the uniforms and uniform accessories required for your

paygrade. Second, you may receive issues of clothing equal to the cash value of your allowance.

Following an initial 6-month active-duty period, you are entitled to receive an annual clothing maintenance allowance. The purpose of the maintenance allowance is to provide you with cash for the purchase of replacement clothing or for the repair of clothing.

Basic Allowance for Quarters

The purpose of basic allowance for quarters (BAQ) is to help you pay the cost of suitable living quarters when government quarters are unavailable or not assigned.

Entitlement to BAQ depends upon your paygrade, whether you have dependents, and whether you and your dependents have been assigned quarters. The receipt of BAQ involves many restrictions and conditions of entitlement.

BAQ is divided into two basic categories: BAQ for members without dependents and BAQ for members with dependents. The rates payable vary within each category and with each paygrade.

For information on whether you are entitled to BAQ and the amounts payable, check with your personnel or disbursing office.

Basic Allowance for Subsistence

Entitlement to a basic allowance for subsistence (BAS) depends upon your status and the availability of a government mess.

Enlisted members are entitled to a daily ration in kind. Each enlisted member receives a daily ration in kind in the form of three meals a day in a government mess. An enlisted member may receive a daily subsistence allowance for each day a government mess is not available or not used.

Normally, entitlement to BAS depends upon the conditions at your permanent duty station. If the station doesn't have a government mess, you are entitled to BAS. If the station has a government mess, but you are authorized to mess separately, you are entitled to separate rations (RATS SEP) (formerly commuted rations, or COM RATS). When authorized BAS, you receive the applicable rate for each calendar day of the month for which you do not receive a ration in kind.

If you are authorized to mess separately, are receiving RATS SEP, and your duties prevent you from

purchasing certain meals in a government mess, you are entitled to a supplemental BAS.

Other Allowances

In addition to the allowances mentioned above, you may receive a family separation allowance (FSA), cost of living allowance (COLA), overseas housing allowance (OHO), variable housing allowance (VHA), or other allowances. Your disbursing or personnel office can provide you with information about the type of allowances, if any, to which you are entitled.

ALLOTMENTS

Allotments are amounts of money you designate to be withheld from your pay and paid directly to someone else.

You may authorize many types of allotments, including the following:

1. C (charity drive donation) allotments to a charity such as the Combined Federal Campaign
2. D (dependent) allotments directly to your dependents
3. H (housing) allotments to a lending institution to pay home-loan payments
4. I (insurance) allotments to a commercial insurance company for life insurance premiums
5. S (savings) allotments directly to an account in your name at a savings institution such as a bank or credit union

For information on making allotments and rules governing their use, see your disbursing office.

LEAVE AND EARNINGS STATEMENT

Based on the Navy's Joint Uniform Military Pay System (JUMPS), the Navy must provide you a monthly leave and earnings statement (LES). JUMPS is a computerized pay and leave accounting system located at the Defense Finance and Accounting Service, Cleveland, Ohio.

The monthly leave and earnings statement provides you with a complete and accurate record of the following:

1. Pay
2. Allowances
3. The type and amount of each allotment requested

4. The amount deducted for withholding tax, Social Security, and Servicemen's Group Life Insurance

5. Earned and used leave

The LES (fig. 8-1) contains all the details you need to keep a personal record of these items. Most of the blocks are self-explanatory. Some of the abbreviations and the use of some of the blocks are explained on the back of the form.

After receiving your LES, check it carefully to verify that the information is correct. If it is not correct or if you have any questions, go to your personnel office or disbursing office.

LEAVE AND LIBERTY

Leave and liberty consist of the times you are authorized to spend away from work and off duty. Each is a separate category, and the two cannot be combined.

Leave

Leave is an authorized absence similar to vacations in civilian jobs. Basically, you will earn 30 days of leave in each year of active duty. We will discuss various terms applied to leave after we explain the way in which leave is computed and earned.

Experience has shown vacations and short periods of rest from duty provide benefits to morale and motivation that are essential to maintaining maximum effectiveness. The lack of a break from the work environment adversely affects your health and, therefore, your availability and performance.

You are encouraged to use, on the average, your entire 30 days of leave each year. Congress has provided compensation for you if military requirements prevented you from using your leave. You should not be required to expend leave immediately before separation simply for the purpose of reducing your leave balance. On the other hand, the use of the leave system as an extra-money program, either as a method of compensation or as a career-continuation incentive, defeats the intent of Congress to provide for your health and welfare. Therefore, don't save leave just to sell it when you separate or are released from active duty.

Liberty

Liberty is an authorized absence from work or duty for a short period. The Navy grants two types of liberty: regular and special.

EARNINGS		DEDUCTIONS		BAL		BALRED		USED		BAL		EXCS			
PAY COMPUTATIONS AND REMARKS															
PERSONNEL AND PAY INFORMATION															
BAL	AMT DUE END OF LAST MO BRO/T FWD	TOTAL EARNINGS (+)	TOTAL DEDUCTIONS (-)	PAYMENTS SINCE LAST LES (-)	AMT DUE END OF CURRENT MO/C/F (=)	MIS C	PAY DEL METHOD	DEBT TO U.S. GOVERNMENT		MEMBER IUC		DATE PREPARED			
TAX	EXEM	FEDERAL TAX WAGE THIS PERIOD	FEDERAL TAX WAGE YEAR TO DATE	FEDERAL TAX YEAR TO DATE	FICA TAX WAGE THIS PERIOD	FICA TAX WAGE YEAR TO DATE	FICA TAX YEAR TO DATE	STATE WAGE YTD (CURRENT STATE)		STATE TAX YTD (CURRENT STATE)		SC			
SVC	PAY ENTRY BASE DATE	END ACTIVE OBUG SERVICE		OTHER PAY ENTRY DATE (OPED)	OPED		OPED	SEA SERVICE COUNTER YRS MOS DAYS							
ENTITLEMENTS				DATE	AMOUNT	DEDUCTIONS				DATE	AMOUNT				
FEE USE ONLY															
PAYMENTS															
				PR NO.	SSN	DATE	AMOUNT								
NOTATION OF AMOUNT DUE															
NAVCOMPT FORM 2285 17-871				IF YOU HAVE ANY QUESTIONS SEE YOUR DISBURSING OFFICER								FOR OFFICIAL USE ONLY			

Figure 8-1.—Leave and earning statement.

holiday.

Special liberty is liberty granted outside of regular liberty periods for unusual reasons, such as compensatory time, emergencies, or voting. You may also receive special liberty for special recognition or to allow you to observe major religious events.

Normally, neither regular nor special liberty periods may exceed 72 hours. Public holiday weekends and public holiday periods specifically extended by the President are the exceptions.

Under certain circumstances, commanding officers can grant 96-hour or 4-day liberty. Four-day liberty is a special liberty period starting with the end of normal working hours on a given day and expiring with the start of normal working hours on the fourth day. The liberty includes at least 2 consecutive nonwork days, such as a Saturday and Sunday included in a period from Thursday afternoon until Monday morning. Thus, the usual length of a 4-day liberty is 88 hours. It may be extended to fit the unit's operating schedule to a maximum of 96 hours.

EXCESS LEAVE.—Excess leave is leave granted in excess of earned leave and advance leave. During a period of excess leave, you are not entitled to pay and allowances. What that means is if you take more leave than you can earn in your present enlistment (without extension), you have excess leave. That leave would be a negative leave balance when you complete your enlistment. In other words, if you have 10 days of leave in your account and 4 months left in your enlistment, you could take a total of 20 days of earned and advance leave. If you took 30 days of leave, you would have 10 days of excess leave. Technically, you would not receive pay or allowances for those 10 days. As soon as you returned from leave, the disbursing officer would subtract all pay and allowances for the excess leave period from your pay. In many cases the disbursing officer may not stop the pay and allowances, causing you to reach the end of your enlistment with a negative leave balance. If that happens you will have to pay back the pay and allowances for the excess leave period even if you extend or reenlist. In most cases negative leave balances cannot be carried over after the end of an enlistment, although positive leave balances can be carried over. However, if you reenlist at least 6 months before the end of your enlistment, a negative leave balance can be carried over.

convalescence. If you have a medical problem that requires a period of recovery but does not require hospitalization, your doctor may prescribe convalescent leave. Convalescent leave is not charged to your earned, advance, or excess leave account; it is computed separately. Use the Leave Request/Authorization form (NAVCOMPT Form 3065) to request either regular or emergency leave. When submitting a leave request, forward the completed form through the normal chain of command.

TRAINING AND EDUCATION

One of the greatest opportunities presented to you by the Navy is that of training and education. By taking advantage of the various programs, you can increase your knowledge and skills and be more valuable to the Navy, prospective civilian employers, and yourself.

Training and education are closely related. Training is receiving skills directed to specific tasks and is usually based on knowledge you already have. Education is receiving broad, general, and specific knowledge intended to prepare you for the specific skills you will receive through training.

As used by the Navy, training usually refers to those things related to your job or Navy skills. Education refers to schooling not directly related to your naval career. Because of that, education programs are sometimes referred to as off-duty educational opportunities.

EDUCATIONAL SERVICES OFFICE

The Educational Services Office (ESO) is your point of contact for all the Navy's training and education programs. The ESO gives all locally administered tests, fills all orders for correspondence courses, and arranges off-duty education. In short, the ESO is responsible for all the training within and for your unit.

PURPOSE OF TRAINING

The purpose of training in the Navy is to support and improve fleet readiness. All training in the Navy is directed toward accomplishing the Navy's mission. Training helps you to do your job better. Remember, training refers to skills directed to specific tasks.

operation and maintenance situations. In OJT you learn to perform a task or duty while performing it. For example, when you have a new job to do or are standing a watch for the first time, someone shows you how to do that job or what is involved in standing the watch. That is OJT. When your supervisor corrects you or shows you a better or faster way to do a job, that is OJT also. OJT is usually informal; but if a group of people are being indoctrinated about a job or watch, OJT may be conducted in a more formal, classroomlike way. OJT is probably the most common form of training in the Navy.

Keep in mind that even as you work at a familiar job—painting, watch standing, boat details, and so on—you are qualifying yourself to be a better Navy member. Do your daily jobs with snap and precision. Your officers and petty officers will recognize your ability and will let you take on jobs of increased responsibility, thereby assisting you in your overall preparation for advancement. Moreover, a job done halfheartedly becomes twice as boring and seems to last twice as long. By trying to do a job faster, more economically, or more neatly, the work becomes more interesting. At the same time you will be training yourself in better attitudes.

Your petty officers will take the opportunities as they arise during the day to instruct you in various jobs. Think about what they tell and show you. Practice as much as you can. Ask questions of experienced personnel so that you understand what you are doing, how and why it should be done, and why the work is important to the Navy and to you. Do not wait for the chief to come along and tell you what to do. Use some initiative, observe what others do, think about what you see, ask questions, and keep learning as you work.

GENERAL MILITARY TRAINING

General military training (GMT) consists of initial orientation and follow-up onboard training in nontechnical areas. It prepares you to fulfill the objectives of your oath of enlistment. GMT also provides guidance and information to you in matters that affect your welfare both as a citizen and as a member of the naval service. GMT provides those areas of training and information required for everyone in the Navy. Recruit training is considered GMT.

to introduce new material of importance to you and all others in the Navy.

GMT sessions cover leadership; the benefits, rewards, and responsibilities of a career in the Navy; and your rights and obligations of citizenship.

Most units conduct GMT as formal training. The person who gives the training uses a lesson plan and presents a film, lecture, or discussion period at a specific time and place.

NAVY SCHOOLS

Navy schools, sometimes referred to as service schools, provide formal training. They usually train you in a specific skill or for a particular job.

Navy schools are divided into several classifications. Each class of school has a particular purpose. The classes and their purposes are given in the following paragraphs.

Class R Schools

Class R schools provide general indoctrination and teach skills and knowledge in basic military subjects. You have already attended a Class R school—recruit training. Recruit training is considered GMT as well as a Class R school.

Class A Schools

Class A schools provide basic technical knowledge and skills required to prepare you for a Navy rating and further specialized training. For example, Basic Electricity and Electronics (BE&E) school is a Class A school. After BE&E school, you could attend another Class A school for a particular rating, such as Fire Control Technician Class A school.

Class C Schools

Class C schools provide you with the advanced knowledge, skills, and techniques to perform a particular job in a billet. A Navy enlisted classification (NEC) code may be awarded to identify the skill achieved. An example of a Class C school would be a school on a particular type of radar system.

enlisted fleet personnel who normally are members of ships' companies. They also provide refresher training, including operator and technical courses of short duration to meet the needs of a fleet or type commander.

Class P Schools

Class P schools provide undergraduate education and indoctrination and basic training in fundamentals, preliminaries, or principles to midshipmen officer candidates and other newly commissioned officers (except those schools acquired through Class V programs). The Naval Academy, Naval Reserve Officer Training Corps (NROTC), and Officer Candidate School (OCS) are all Class P schools.

Class V Schools

Class V schools provide training in the skills that lead to the designation of naval aviator or naval flight officer.

Obligated Service Requirements for Schools

Normally, you must have a certain amount of obligated service to be eligible to attend a Navy school. The amount of obligated service required depends on the length of the school. Obligated service is counted from the time you start the school until the end of your active obligated service (EAOS) date. You may increase your obligated service to qualify for a school by agreeing to extend your enlistment or reenlist. Your personnel office can give you the obligated service requirement for any particular school.

TRAINING MANUAL

A training manual (TRAMAN) provides you with basic information about a particular rating. You may also use it to study for advancement examinations. The Naval Education and Training Program Management Support Activity (NETPMSA) publishes TRAMANS. Navy schools may use them as texts or references. They may also be used as references for questions in personnel qualification standards (PQS), as texts for correspondence courses, or as self-study manuals. TRAMANS cover the qualifications necessary for advancement by covering the material directly or by directing you to some other reference. TRAMANS include general TRAMANS, such as this text and other

NONRESIDENT TRAINING COURSE

The nonresident training course (NRTC) is a self-study, enlisted training course used with a TRAMAN. Generally, the NRTC is locally administered, which means your ESO issues and scores it.

Some TRAMANS and NRTCs are printed in one book and referred to as a TRAMAN/NRTC. Order TRAMANS, NRTCs, and TRAMAN/NRTCs through your ESO.

NAVAL CORRESPONDENCE COURSES

Naval correspondence courses are designed as self-study materials and are available to you without charge. These courses cover a wide range of subjects, such as accident prevention, leadership, the metric system, and Navy travel.

The *List of Training Manuals and Nonresidence Training Courses*, NAVEDTRA 12061, contains a current list of available courses. Your ESO should have a copy of that publication.

You may order any training manual or nonresident training course through your ESO. Your ESO will administer some courses while other activities will administer others. Your ESO can tell you what activity administers a particular course.

OFF-DUTY EDUCATIONAL OPPORTUNITIES

This section discusses some of the off-duty educational programs designed to assist you in your career and allow you to improve your education. Some programs are Navywide and others are local.

Take advantage of as many of the available educational programs as you can. For detailed information on off-duty educational programs, contact your ESO.

Navy Campus

Navy Campus is the name given to in-service voluntary educational programs and the supporting services provided by the Navy to help you with your education. Navy Campus includes all educational

In the following paragraphs we will discuss some of the educational opportunities available to you through Navy Campus. For further information on those opportunities or to find out about other Navy Campus programs, see your ESO, career counselor, or Navy Campus representative.

BASIC SKILLS PROGRAM.—Many shore stations and some large ships provide tuition-free, on-duty courses to help enlisted people improve their skills and military performance. The basic courses offered include subjects such as English, mathematics, and reading.

The Basic Skills Program offers courses people need to earn high school diplomas. The Navy pays for all high school completion courses personnel take during off-duty hours. However, the Navy encourages young people to stay in school and graduate before enlisting in the Navy.

PROGRAM FOR AFLOAT COLLEGE EDUCATION (PACE).—The Program for Afloat College Education (PACE) provides undergraduate courses of accredited colleges or universities to shipboard personnel. Civilian instructors teach the courses aboard ship. The Navy fully funds PACE courses; however, students must pay course registration fees and purchase their own books.

TUITION ASSISTANCE PROGRAM (TA).—The Tuition Assistance (TA) Program provides financial assistance to eligible personnel who attend educational institutions on a voluntary, off-duty basis.

Defense Activity for Nontraditional Education Support

Defense Activity for Nontraditional Education Support (DANTES) provides support to the voluntary education programs of all the military services. DANTES is not a Navy activity, but is part of the Department of Defense. DANTES administers nontraditional education; that is, education that does not take place in a formal classroom. DANTES provides a wide range of examination and certification programs, operates an independent study support system, and provides other support and developmental activities.

DANTES EXAMINATION PROGRAMS.—DANTES administers and sponsors examination programs at over 840 testing sections throughout the world. DANTES offers aptitude and interest testing as

DANTES INDEPENDENT STUDY PROGRAMS.—DANTES Independent Study Programs allow you to take correspondence courses from many colleges and universities. Those courses range from high school to graduate level.

OTHER DANTES SERVICES.—DANTES provides many other services besides those just described. To find out more about DANTES, contact your ESO or Navy Campus representative.

Enlisted Education Advancement Program

The Enlisted Education Advancement Program (EEAP) allows career-motivated individuals to obtain an associate of arts/sciences degree in 24 calendar months or less. Personnel must meet the following eligibility requirements:

- Be a PO3 or above and have at least 4 years' active duty (or PO2 with a minimum of 3 years' active duty) but not more than 14 years' active duty
- Possess a high school diploma or GED certificate
- Have a $GCT + AR1 = 110$ or $WK + AR = 110$

Personnel accepted into the program must pay all educational expenses, such as tuition, fees, and books. Upon enrollment in the program, they must obligate for 6 years' active duty. While attending college, personnel may compete for advancement.

PROGRAMS LEADING TO A NAVAL COMMISSION

Navy personnel may follow many paths to a Navy commission. Certain enlisted men and women who are outstanding performers may qualify for a commissioning program. This section briefly describes the Navy's basic commissioning programs.

NAVAL ACADEMY

Each year, the Secretary of the Navy may appoint 85 enlisted men and women from the Regular Navy or Regular Marine Corps and 85 enlisted men and women from the Naval or Marine Corps Reserve (active or inactive) to the Naval Academy at Annapolis, Maryland. Those who are appointed receive a fully subsidized

midshipmen, U.S. Navy. They receive pay equal to about one-half an ensign's basic monthly pay, plus tuition, room, and board. Upon graduation they are awarded a bachelor of science degree in one of 18 majors and an ensign's or second lieutenant's gold bars.

NAVAL ACADEMY PREPARATORY SCHOOL

The Naval Academy Preparatory School (NAPS) is located in Newport, Rhode Island, as a part of the Naval Education and Training Center. With up to 300 male and female students, the school offers a balanced academic, military, and physical program patterned after the Naval Academy.

Academically, the school teaches mathematics, chemistry, physics, and English at three levels of difficulty and teaches an introductory computer course.

Although not required to gain a Secretary of the Navy appointment to the Academy, attendance at NAPS greatly improves the chances for obtaining one of these appointments.

NROTC SCHOLARSHIP PROGRAM

The Naval Reserve Officer Training Corps (NROTC) Scholarship Program leads to an appointment as a Reserve or Regular officer in the Navy or Marine Corps at the grade of ensign or second lieutenant.

If you qualify and are selected for this program, you will receive a scholarship to a college or university with an NROTC unit. You must sign an agreement to spend 6 years in the Navy upon your completion of or withdrawal from school. If you are on active duty at the time you sign the agreement, you will be discharged to attend school for a maximum of 40 months. During that time you will receive tuition, books, and fees. Personnel who have entered the program from active duty will also receive a subsistence allowance.

BROADENED OPPORTUNITY FOR OFFICER SELECTION AND TRAINING PROGRAM

If you are interested in the Naval Academy or the NROTC Scholarship Program and qualify in all respects except academically, you may want to apply for the BOOST program. BOOST stands for Broadened

and the basic qualities and desires needed to gain a commission.

If you are selected for BOOST, you will receive academic, physical fitness, and general military training as well as counseling. Selection for BOOST does not guarantee your selection for the Naval Academy or the NROTC Scholarship Program, but it certainly increases your opportunities.

ENLISTED COMMISSIONING PROGRAM

If you are interested in a commission and have enough college credit to complete all the requirements for a baccalaureate degree within 2 years, you may qualify for the Enlisted Commissioning Program (ECP). If you are selected for the ECP, you will attend a college of your choice and receive full pay and allowances while you do so. However, you will pay your own educational expenses. Upon graduation, you will attend Officer Candidate School and be commissioned.

You must agree to a 6-year obligation for active enlisted service from the date of enrollment in the Enlisted Commissioning Program. Upon your commission, that obligation is cancelled and you assume an obligation of 4 years of commissioned service.

NAVAL RESERVE OFFICER PROGRAMS

Seven programs lead to commissions in the U.S. Naval Reserve for enlisted personnel who possess a baccalaureate degree or higher. These programs are as follows:

1. Unrestricted Line Appointment Program
2. Nuclear Propulsion Officer Candidate Program
3. Aviation Officer Candidate School Program
4. Navy Judge Advocate General (JAG) Corps Direct Appointment Program
5. Chaplain Corps Direct Appointment Program
6. Civil Engineer Corps Direct Appointment Program
7. Nuclear Power Instructor and Naval Reactor Engineer Direct Appointment Program

With the exception of those in the Aviation Officer Candidate School Program, all candidates will attend

Pensacola, Florida.

If you are interested in any of the Naval Reserve Officer Programs, contact your career counselor. The *Retention Team Manual* contains information on these programs.

CHIEF WARRANT OFFICER PROGRAM

The Chief Warrant Officer Program provides personnel an opportunity to earn a commission as an officer without possessing a college degree. You must be in one of the senior enlisted paygrades to qualify as a chief warrant officer candidate. The specific requirements of the program, which are published each year, are available from your career counselor.

LIMITED DUTY OFFICER

The Limited Duty Officer (LDO) Program is another way in which you can obtain a commission without a college degree. LDOs are commissioned officers who are selected from the senior enlisted paygrades. The requirements for this program, also published each year, are available from your career counselor.

ALCOHOL/DRUG ABUSE

There is "Zero Tolerance" of alcohol and other drug abuse. The abuse of alcohol and other drugs by Navy members can seriously damage physical and mental health, may jeopardize their safety and the safety of others, and can lead to criminal prosecution and discharge under less than honorable conditions. Furthermore, alcohol and other drug abuse is inconsistent with Navy initiatives to promote personal excellence among its members.

-OPNAVINST 5350.4B

Alcohol and drug abuse erodes the effectiveness of naval personnel in the performance of their day-to-day duties. The Navy's "Zero Tolerance" policy was instituted to assist commanders in dealing with the problems associated with drug and alcohol abuse.

The Navy recognizes that alcohol abuse is preventable and treatable. Therefore, the Navy requires command, supervisory, and health services personnel to develop enlightened attitudes about alcohol abuse and to take corrective techniques to help the abuser.

While individuals bear the responsibility for obtaining treatment for alcohol abuse, the Navy tries to identify and treat abusers whether they first seek help or not.

Regardless of the circumstances surrounding the abuse of alcohol, personnel still must abide by the Navy's standards of conduct, performance, and discipline. That means the Navy will not tell you "don't drink." However, if drinking affects your job performance, conduct, or discipline, the Navy will firmly enforce its standards.

The Navy recognizes alcoholism as a disease and, as such, is convinced alcoholism can be treated. Every sailor suffering from alcoholism has the opportunity to be treated. The Navy has a large program intended to educate, assist, and rehabilitate Navy personnel afflicted with the disease.

While no "profile" of average alcoholics exists, they have usually been drinking alcohol several years before they develop alcoholism. However, that is not always the case. The Navy has found alcoholism among many of its personnel in their teens and early twenties.

EFFECTS OF ALCOHOL

Until recently, alcoholism was considered a disciplinary or administrative problem, which, unresolved, could only lead to a discharge from the Navy.

Considering the long experience of mankind with alcohol, the ignorance of many experienced drinkers about the effects of their favorite beverage is surprising.

Little factual alcohol and health information was available until recent years when drinking problems forced public concern. You could find a library on how to mix exotic drinks, but not much about what happens after the drinking starts.

Alcohol is a substance produced by sugar and yeast. Ethyl alcohol is used in making beer, wine, and liquor. Alcohol is a "drug" to be handled with care. Alcohol is also a depressant—it slows down the nervous system.

and spreads throughout the body.

The body metabolizes, or burns and breaks down, alcohol at a fairly constant rate. When a person consumes alcohol at a faster rate than the body can burn it, the alcohol accumulates in the body. However, the first few sips of an alcoholic beverage may cause changes in mood and behavior. Low doses of alcohol reduce sensitivity to taste and odors. Alcohol has little effect on the sense of touch, but dulls the sensitivity to pain.

The sharpness of vision seems relatively unaffected by alcohol. However, a high dose of alcohol can cause a decreased ability to discriminate between lights of different intensities and a narrowing of the visual field (tunnel vision). Tunnel vision is particularly dangerous when a person tries to drive an automobile. A high dose of alcohol also impairs resistance to glare so that the eye requires longer to readjust after exposure to bright lights. It also causes a decreased sensitivity to certain colors, especially red.

Alcohol Use and Abuse

Since we know alcohol is a drug, we know it must be handled with care. Although millions of people use this dangerous drug regularly, with pleasure, without getting into trouble, it can kill 1 ounce at a time.

Most people do not think of alcohol as a drug because of its use in our society. We use it in religious ceremonies, celebrations, social functions, and with meals.

The Navy doesn't tell you not to drink. That is a decision only you can make. However, the Navy does care about your well-being and how it affects your performance of duty. That is where the abuse of alcohol enters the picture.

What is alcohol abuse? The answer lies in the way people use it—whether they use it responsibly or abuse it. Consuming too much, too often, for the wrong reason is considered to be alcohol abuse. Abusing alcohol also leads to intoxication.

Intoxication develops in stages. The first is a happy stage. People become talkative, sociable, and relaxed. The second stage is that of excitement; they become emotional, exhibit erratic behavior, and develop slow reactions. In the third stage people become confused, moody, angry, and disoriented. In the fourth stage they

may lose control of their body and may fall. The stages may vary with different people. An extra drink could take a person from stage 1 to stage 4.

People get into trouble during the different stages of intoxication. Violence, going to work intoxicated, a loss of coordination that causes an accident, and arrests for drunkenness are just a few examples of the results of alcohol abuse. Alcohol abuse can lead to alcohol dependency and alcoholism.

Alcoholism

Alcoholism is a disease characterized by psychological or physical dependency on alcohol. Determining if someone is an alcoholic or a social drinker is difficult. However, the social drinker can stop; the alcoholic cannot. Alcoholics have an extraordinary ability to adapt to alcohol. They can consume relatively large amounts without losing control of their actions.

No one cause produces alcoholism. It usually starts when people cannot cope with everyday problems. They drink to escape those problems or to try to solve them.

You can see a change in alcoholic persons after they have had a few drinks. Alcohol gives them a sense of well-being and self-sufficiency. If they continue drinking, they eventually get into trouble. The alcohol that gives them that sense of success and well-being eventually strips them of those feelings. They become helpless and dependent on others to help them.

Alcohol and Drugs

Since alcohol works on the same brain areas as some other drugs, when taken together, drugs and alcohol can multiply the usual responses expected from either the drugs or the alcohol alone. That is known as the synergistic effect.

When drugs must compete with alcohol for processing by a person's body, the body metabolizes the alcohol first; the other drugs remain active in the person's blood for an extended time. The body's need to take care of the alcohol first results in slower metabolism of the other drugs. When added to the normal depressant effect of alcohol, the drugs further depress the nervous system that regulates body functions. That is a serious condition that can result in death.

Counseling and assistance centers (CAACs), at locations worldwide, provide counseling of personnel involved with drugs and alcohol. Individuals not considered to require professional treatment may get treatment through these nonresident counseling programs. Many CAACs employ an alcoholism counselor and provide limited outpatient evaluation and counseling for alcoholics. They can also provide supportive counseling for recovering alcoholics in need of such a service.

NAVY POLICY ON DRUG ABUSE

The wrongful use of legal and illegal drugs by Navy personnel is a matter of great concern. (In this chapter reference to the term drugs includes legal and illegal medications, narcotics, and other substances such as deliriants.) Drugs have a legitimate place in society, of course, but only when qualified medical personnel carefully control their use. A military environment in which people depend on each other for their safety, and even survival, cannot tolerate drug abusers.

The policy of the Navy is to prevent and eliminate drug abuse within the Navy and to restore personnel, so involved, who have a potential for continued naval service. The results of abuse can range from a failure to live up to military standards to the performance of criminal acts that may lead to prosecution. Illegal or improper use of drugs not only has a damaging effect on the abuser, but also on the physical and mental health of the person's comrades.

The abuse of drugs contradicts the Navy's high degree of mental, physical, and psychological requirements. Each member must be prepared at all times to carry out the Navy's mission and fulfill its role of readiness. Therefore, the Navy has assumed the responsibility for educating, counseling, and protecting personnel against drug abuse.

Definitions

The following are definitions of terms associated with drugs and persons using drugs:

Drug: A substance other than food intended to offset the structure or function of the body.

Illegal drug: That category of substances which are controlled or prohibited by law or regulation.

methadone.

Dangerous drugs: Certain nonnarcotic drugs that are habit forming or have a potential for abuse because of their stimulant, depressant, or hallucinogenic effect.

Drug abuse: The wrongful or improper use of any legal or illegal drugs, products of cannabis, or deliriants. The illegal or wrongful possession, transfer, or sale of the same.

Drug abuser: One who wrongfully or improperly uses any legal or illegal drugs, products of cannabis, or deliriants. One who has illegally or wrongfully possessed, transferred, or sold the same.

Drug abuse paraphernalia: All equipment, products, and materials of any kind that are used, intended for use, or designed for use in injecting, inhaling, or otherwise introducing into the human body marijuana, narcotic substances, or other controlled substances in violation of the law.

Marijuana: Any intoxicating product of the hemp plant, cannabis (including hashish), or any synthesis thereof.

Drug Use

Medicinal drugs are used to treat illness or to relieve pain. Without them we would experience a lot of pain and suffering. Medicinal drugs include aspirin, antihistamines, antacids, and penicillin. Drugs have a definite purpose in our society, especially when they are prescribed by physicians to cure illness. When used as prescribed by physicians, drugs are legal.

We buy two commonly used drugs—nicotine and caffeine—at our local grocery store in the form of cigarettes and coffee. Both drugs are stimulants; they affect the heart rate and the respiratory system. They are legal drugs even though people do become addicted to them. People who have smoked tobacco or drunk coffee over a period of years and then stop may experience a kind of withdrawal. During that period they may become nervous and irritable.

Other drugs, such as diet pills, cold remedies, and pain-killers, can cause problems when people do not take them as directed. Whether we use a drug prescribed by medical authority or bought over the counter, we can misuse or abuse it—or we can use it correctly.

Drug Misuse and Abuse

Millions of people misuse drugs everyday; but what constitutes misuse? When you do not take a drug as directed, that is misuse. For example, a doctor prescribes a drug to be taken four times a day for a duration of 10 days for a specific illness. If you take it six times a day, thinking you will get well faster, that is misuse. If not taken for the intended period of time, that also constitutes misuse.

Now suppose the drug is a narcotic or dangerous drug. If not taken as directed, that is drug abuse. Remember part of the definition of drug abuse—"improperly used narcotic or dangerous drug." Giving the drug to someone else is also drug abuse—illegal transfer on your part and wrongful possession on the other person's part.

The Navy is concerned with both the abuse of drugs and the use of illegal drugs.

Illegal Drugs

Illegal drugs are ANY DRUGS PROHIBITED BY LAW. Illegal drugs and some legal drugs normally available only by a doctor's prescription are manufactured by unscrupulous individuals for sale to underground buyers. Those drugs are usually inferior products prepared in unsanitary laboratories for future marketing on our nation's streets.

The following are some types of drugs used legally and illegally:

- Narcotics: Examples of narcotics are heroin, methadone, opium, morphine, and codeine. Opium, morphine, and codeine all come from the same source—the poppy plant.

Narcotics are highly addictive. Tolerance to them develops quickly. They can produce considerable psychological and physical dependency. Most of the people who die as a result of narcotics use are not killed by the drug, but as a result of the life they must live to feed their illegal and highly expensive habit.

- Stimulants: Although the most common stimulants—nicotine and caffeine—are legal, the stronger and more dangerous stimulants are illegal. Stimulants include a broad range of substances, including amphetamines and cocaine.

Amphetamines are often called "uppers" or "pep pills." Medical use of amphetamines is generally limited to treatment of narcolepsy (a sleep disorder), short-term

appetite control in cases of obesity, and treatment of hyperactive children. Illegal use of amphetamines occurs when people wish to push themselves beyond their limits. Amphetamines can induce anxiety, irritability, and sometimes violence.

The strongest stimulant of natural origin is cocaine. Once regarded as a so-called recreational drug, cocaine is now considered a deadly drug that causes anxiety, seizures, paranoia, and death. Cocaine comes in various forms. The most common of which is crack. Crack is the most potent and toxic form available. It is often 90 percent pure, where other forms are generally 15 to 20 percent pure. Users normally crush crack and sprinkle it on tobacco or marijuana cigarettes to smoke it; it is 5 to 10 times more addictive than cocaine taken in other forms. Users often get caught in a cycle of needing more and more just to feel normal. Today, the only recognized medical use for cocaine is as a local anesthetic, generally restricted to nose, ear, and throat surgery.

- Depressants: Examples of depressants are barbiturates, chloral hydrate, tranquilizers, and other sedatives. These drugs depress the central nervous system. Taken in amounts as prescribed by a physician, depressants can be beneficial in the treatment of insomnia and relief of anxiety, irritability, and tension. However, taken in excessive amounts, they produce a state of intoxication similar to alcohol, which is also a depressant.

As with alcohol, the effects of depressants vary from person to person and from time to time in the same individual. Low doses, as generally prescribed by a physician, produce mild sedation and some relief of anxiety. Higher doses, including illegal use, may produce a temporary state of euphoria, but may also produce mood depression and apathy. Intoxicating doses invariably result in impaired judgment, slurred speech, and an often unrealized loss of motor coordination. Drowsiness, sleep, stupor, coma, and death may also occur.

Barbiturates are common depressants generally taken in pill form. They include drugs such as pentobarbital, secobarbital, and amobarbital. Physicians use them for sedation, and veterinarians use them for anesthesia and euthanasia (death). Medically, these drugs are generally used as sedatives, hypnotics, and anticonvulsants. All barbiturates result in a rapid buildup of tolerance with widespread and serious physical and psychological dependence. Withdrawal from barbiturates is an extremely serious matter because it can result in death without close and careful medical supervision.

- Hallucinogens: Examples of hallucinogens are mescaline, LSD, and PCP. (These drugs are also called psychedelics.) They distort the perception of reality. They affect sensation, thinking, self-awareness, and emotion. Depending on the dose and strength of the particular drug, changes in time and space perception, delusion (false beliefs), and hallucinations (experiencing nonexistent sensations) may occur. Restlessness and sleeplessness are common until the drug wears off. The greatest danger of hallucinogens is their unpredictable effects. Toxic reactions may lead to psychotic reactions, and death may occur.

PCP is the common name for phencyclidine. Developed in the 1950s, it was used as a veterinary anesthetic. The illegal form of PCP is called angel dust.

Hallucinogens may cause a strong psychological dependence. One of the most dangerous effects of hallucinogens is their unpredictability. Persons in hallucinogenic states cannot function normally. They should be closely watched to keep them from harming themselves or others.

- Deliriants: Examples of deliriants are aerosol products, airplane glue, lighter fluid, paint thinner, and gasoline. These drugs cause mental confusion, slurred speech, poor coordination, and impaired judgment. The breathing of the fumes from these products causes sleepiness, dizziness, and nausea. The abuse of these products is extremely dangerous. They can cause brain, liver, and bone-marrow damage. Deliriants have been known to kill by asphyxiation and suffocation. Deliriants are also known as VOLATILE CHEMICALS.

- Cannabis: Users smoke cannabis in various forms; examples are marijuana and hashish. Cannabis causes effects similar to those of alcohol. Its continued use could lead to the use of the more dangerous form of a drug.

LEGAL CONSEQUENCES OF DRUG ABUSE

Drug abuse is illegal in the United States and most other countries. The penalties are the same whether you are an abuser or a hard-core user. For simple possession in the United States, you can receive a fine of \$5,000 and 1 year of imprisonment. In other countries the penalties can be much more severe. In many countries other than the United States, you will spend years in jail before even being tried.

From a legal viewpoint, the possession or use of drugs can result in severe penalties. Article 1138 of U.S.

Navy Regulations, 1990, prohibits, except for medical use, the use, possession, sale, or transfer of any controlled drugs on board any ship, craft, aircraft, or station under the jurisdiction of the Department of the Navy. Civil penalties vary among the states. Generally speaking, they range from 1 year's probation for a first offense of simple possession to life imprisonment and a fine of \$100,000 for continuing criminal violations, particularly those involving sales. When a person over 18 sells drugs to a person under 21, the first-offense punishment is twice that otherwise prescribed. In most states, a person loses several rights upon conviction of mere possession of illegal drugs. The individual cannot vote, run for public office, obtain a license in many of the professions (doctor, lawyer, dentist, and so forth), be bonded, or work for the U.S. government.

Drug abuse has a particularly important consequence for the armed forces. Unlike civilians, members of the military service have a special dependency on each other. The lives of everyone on a Navy ship may depend on the alertness of one person assigned to close certain watertight doors. The members of a Marine Corps fire team depend on each other for survival in a combat situation. Fighter aircraft, bombers, and Army tank crews are equally important to each other. No commander can trust the fate of a combat unit, ship, or plane to a person who may be under the influence of drugs.

Drug abusers in military service leave themselves wide open as a security risk—for example, they can be blackmailed by threat of exposure. They also can be led to sell or give away classified information to support their drug habits. Also, while under the influence of narcotics, they may overlook or ignore proper security measures. Their security clearance could be terminated as a result of their drug use.

In military law, wrongful acts concerning narcotics and marijuana have traditionally been charged as "conduct prejudicial to good order and military discipline." Now an article of the *Uniform Code of Military Justice*, article 112a, specifically deals with drug offenses. This article resulted from an update of the *Manual for Courts-Martial*.

The *Manual for Courts-Martial, 1984*, provides a maximum punishment of a dishonorable discharge and confinement for 5 years for wrongful use, possession, or introduction of narcotics. It provides a dishonorable discharge and 2 years' maximum confinement for wrongful use, possession, or introduction of marijuana and some types of narcotics. The maximum punishment for wrongful distribution with intent to sell narcotics or

marijuana is 10 to 15 years. Committing any of the above offenses while on duty, aboard ships, or on aircraft used by the armed forces or while receiving some types of special pay adds 5 years to the periods of confinement.

The Navy has been very successful in its efforts to combat drug abuse. The percentage of Navy members involved in drug abuse cases has steadily fallen during the last several years. With continued emphasis on educating personnel about the effects of and penalties for drug abuse, we will reach our goal of a drug-free Navy.

DISCHARGE

If you separate from the Navy before your end of active obligated service (EAOS), or after 8 years of service, or if you reenlist, you will receive a discharge from the Navy. If you separate from the Navy at your EAOS but before completing 8 years of service, you will not receive a discharge but will be "separated" from active naval service. The Navy gives five types of discharge. Each type of discharge has a specific meaning and affects you in a way different from any of the others. The type of discharge you receive depends on the reason for your discharge.

REASONS FOR DISCHARGE

You may receive a discharge for many reasons. Basically, under almost all conditions, whenever and however you leave the Navy, you will receive a discharge. Some of the reasons for receiving a discharge are as follows:

1. Expiration of enlistment
2. Disability
3. Dependency or hardship
4. Fulfillment of service obligation
5. Convenience of the government
6. Unsuitability

If discharged for any of the above reasons, you will receive an honorable or a general discharge. We cover the other reasons for a discharge in the following section under the type of discharge to which they apply.

TYPES OF DISCHARGE

The five types of discharge are honorable, general (under honorable conditions), other than honorable, bad conduct, and dishonorable.

Some personnel think because a general discharge is given under honorable conditions, it is as good as the honorable discharge itself. However, that assumption is not true. A general discharge indicates satisfactory service but not to the established standard of the Navy.

Honorable Discharge

To receive an honorable discharge, you must have received a rating from good to excellent for your service to the Navy. You must have a final overall average mark no lower than 2.7; you must have an average conduct mark no lower than 3.0. Even though you only qualify for a general discharge, you may receive an honorable discharge under two circumstances. The first is when you are being separated because of a disability incurred in the line of duty. The second is when you receive any awards for gallantry in action, heroism, or other meritorious service.

General Discharge

You receive a general discharge when you separate from the service, under honorable conditions, without a sufficiently meritorious military record to deserve an honorable discharge.

Other Than Honorable Discharge

You receive an other than honorable discharge for misconduct or security reasons.

Bad Conduct Discharge

You receive a bad conduct discharge (BCD) when you separate from the service under conditions other than honorable. You may receive a bad conduct discharge only by an approved sentence of a general or a special court-martial.

Dishonorable Discharge

You receive a dishonorable discharge (DD) when you separate from the service under dishonorable conditions. You may receive a dishonorable discharge only by a general court-martial and as appropriate for serious offenses calling for dishonorable separation as part of the punishment.

EFFECTS OF THE TYPE OF DISCHARGE

Some people will try to convince you (or themselves) that the type of discharge they receive will make no difference in their civilian lives. Others will tell you that a discharge under less than honorable conditions can be upgraded if they show themselves to have been good citizens for a time. How wrong they are! Although some discharges have been upgraded by the Board for Correction of Naval Records, the percentage is small. The Board is not interested in your civilian life, but how you performed while in the Navy.

When you leave the Navy, you want to do so with an honorable discharge. An honorable discharge has many advantages for you throughout your life. Some of the immediate advantages are the entitlements to various veterans' benefits and rights. When you apply for a job or for entry to a school or college, you will find an honorable discharge is advantageous, and, in many instances, an absolute necessity. Most important of all, and vital for your future self-respect and peace of mind, is the knowledge that your service to your country was up to standard.

Receiving an honorable or general discharge makes you eligible for all federal benefits (and they are considerable). Receiving a dishonorable or bad conduct discharge by a general court-martial disqualifies you for any benefits. A bad conduct discharge from a special court-martial even disqualifies you for any military benefits such as transportation home or payment for accrued leave. Neither can you receive civil service employment preference, reemployment rights, or other related benefits. The Veterans' Administration decides your entitlement to veterans' benefits on an individual basis.

Failing to receive an honorable discharge also has consequences of a more personal and far-reaching nature. You bring shame to your family. You will have difficulty explaining your dishonorable or bad conduct discharge to friends who have honorable military service. You will have difficulty getting good jobs and getting accepted into good schools. Everybody knows the Navy does not give bad conduct discharges except for serious or repeated offenses. Thus, you may have a hard time proving people can trust you as a friend or to do a job.

Receiving an honorable discharge means you can face the world proudly and securely in the knowledge that your years served in the Navy were well spent. On the other hand, receiving a dishonorable or bad conduct discharge means you must admit to wasted years in the

Navy. It means you failed in your duty to your country and in meeting the high standards of the Navy.

NAVY GOOD CONDUCT MEDAL

You may earn many awards while you are in the Navy. One of the most important of these awards is the Navy Good Conduct Medal. That medal is the highest precedence award among the campaign and service awards.

Make every effort to earn the Navy Good Conduct Medal. Earning that award can affect your promotion. Meeting the requirements for the Navy Good Conduct Medal means you also meet the requirements for reenlistment, overseas duty, certain Navy schools, and Navy commissioning programs.

Your commanding officer can recommend you for a Navy Good Conduct Medal as a reward for 4 years of good conduct. Good conduct means no performance evaluation mark below 3.0 and no nonjudicial punishments or court-martial convictions.

SUMMARY

In this chapter we have discussed a wide variety of programs designed to help you in making decisions that affect your career.

Being a member of the Navy gives you various responsibilities, including that of your own financial management. You can use your leave and earning statement to help you develop a budget to keep from overextending yourself financially. The Navy takes matters of indebtedness very seriously. Therefore, take advantage of the programs available through the Navy to help you with monetary problems.

The Navy has several programs that provide professional training and off-duty educational opportunities. As the Navy has long recognized, the more education you get, the more you will benefit your organization and the Navy.

Many programs lead to a commission as a naval officer. Each year, hundreds of enlisted personnel receive a commission through one of these programs. They then continue to make significant contributions to the Navy's mission as an officer.

The Navy has a firm, zero-tolerance policy concerning alcohol and drug abuse—it allows no room for flexibility. It intends to become an alcohol- and drug-abuse-free service. The Navy ensures all of its members know the results of noncompliance.

The Navy gives various types of discharges. Your eligibility for benefits and other programs after separation or retirement depends on the type of discharge you receive. An other than honorable discharge has certain negative social effects.

The many helping resources and programs within the Navy's organization can benefit everyone. Look into these programs. Ask questions and learn all you can about them. They can benefit you in many ways during your naval career.

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CHAPTER 9

NAVAL UNIFORMS

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Identify the correct manner for wearing enlisted uniforms.
2. State the purpose of maintaining a complete seabag.
3. Describe the proper method for marking enlisted uniforms.
4. Identify the collar devices and insignia of U.S. Navy enlisted rates and ratings.
5. State the purpose for wearing service stripes.
6. Describe the qualifications required to earn service stripes.
7. Identify the corps devices and insignia of U.S. Navy officers.
8. State the regulations for wearing U.S. Navy awards and breast insignia.
9. Define the regulations concerning identification tags and identification cards.
10. State the regulations concerning grooming standards for men and women.
11. Identify paygrade insignia of other U.S. Armed Services.
12. Identify the regulations for wearing, marking, and upkeep of organizational and special clothing.

Today's Navy has narrowed the gap between men's and women's career paths. Women now perform many of the same tasks and have the same specialties as their male counterparts. These changes necessitated a more definite policy to bring the uniforms of both men and women more closely in line with each other. Navy uniforms are distinctive visual evidence of the authority and responsibility vested in their wearer by the United States.

You shall wear your uniforms properly as described in these regulations. Naval personnel must present a proud and professional appearance that will reflect positively on the individual, the Navy, and the United States. The uniforms of the United States Navy and the indications of rank and specialty displayed thereon, are but outward symbols of naval organization and military rank or rating. As such, the Navy uniform is a visibly important element in the morale, pride, discipline and effectiveness of the organization.

— *U.S. Navy Uniform Regulations,
NAVPERS 15665G*

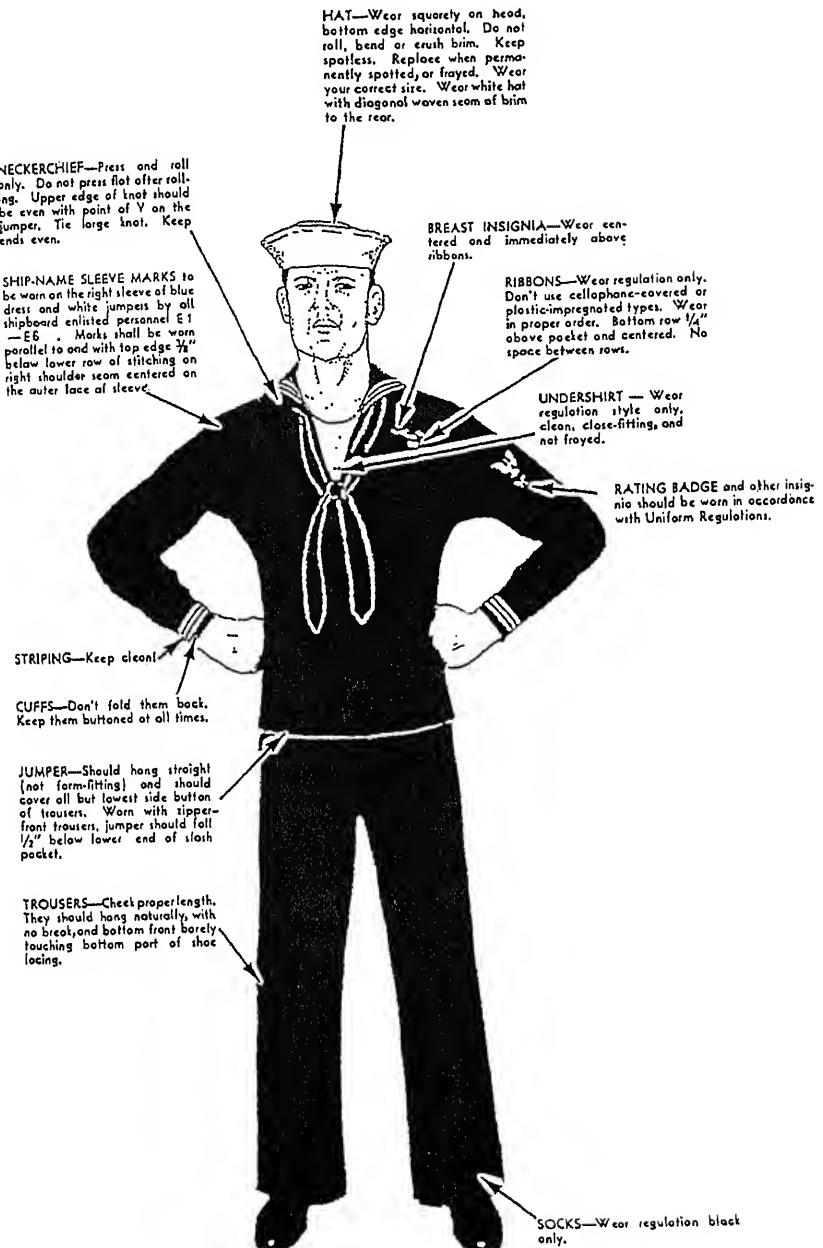
Because Navy ways are new to you, many questions probably have crossed your mind, such as What is that officer's rank? What does that petty officer's insignia mean? What does that pin stand for? This chapter explains officer grades; precedence; authority; the enlisted rating structure; and how to wear, mark, and exchange uniforms.

The United States Navy has had a basic uniform policy for many years. The purpose of the uniform policy is to ensure that naval personnel have attractive, distinctive, and practical uniforms. *U.S. Navy Uniform Regulations* (NAVPERS 15665G) provides the basic naval uniform policy.

WEARING OF THE UNIFORMS

Your dress and conduct should always reflect credit upon yourself, the Navy, and the United States. It should be a matter of personal pride to present the best possible appearance in your manner of dress and grooming.

You are given a complete issue of regulation clothing upon entering the Navy, but the maintenance of your uniform and the replacement of articles of clothing are your responsibility. You cannot use the excuse, "I have nothing fit to wear," or "I'm out of clean uniforms."



DRESS BLUES

Figure 9-1.—Proper wearing of uniforms.

ENLISTED MEN

Enlisted (E-6 and below) men's uniforms and their proper wear are illustrated in figure 9-1 (not all uniforms are shown). Uniforms must be tailored according to the specifications in the following paragraphs.

The dress blue jumper should hang straight and be of sufficient length to cover all but the lowest button of the 13-button broadfall (flap) front trousers. Sleeves

must have two-button cuffs, the edge of which reaches to the knuckles when the cuffs are unbuttoned and hands hang naturally at the side. The collar has three stripes of white tape (piping). The legend of the three stripes honoring Lord Nelson's victories is a myth. The stripes were added to add color to the solid blue collar.

The trousers are plain and cuffless and have a 13-button broadfall front. The old story that the 13 buttons represent the 13 original colonies is false.

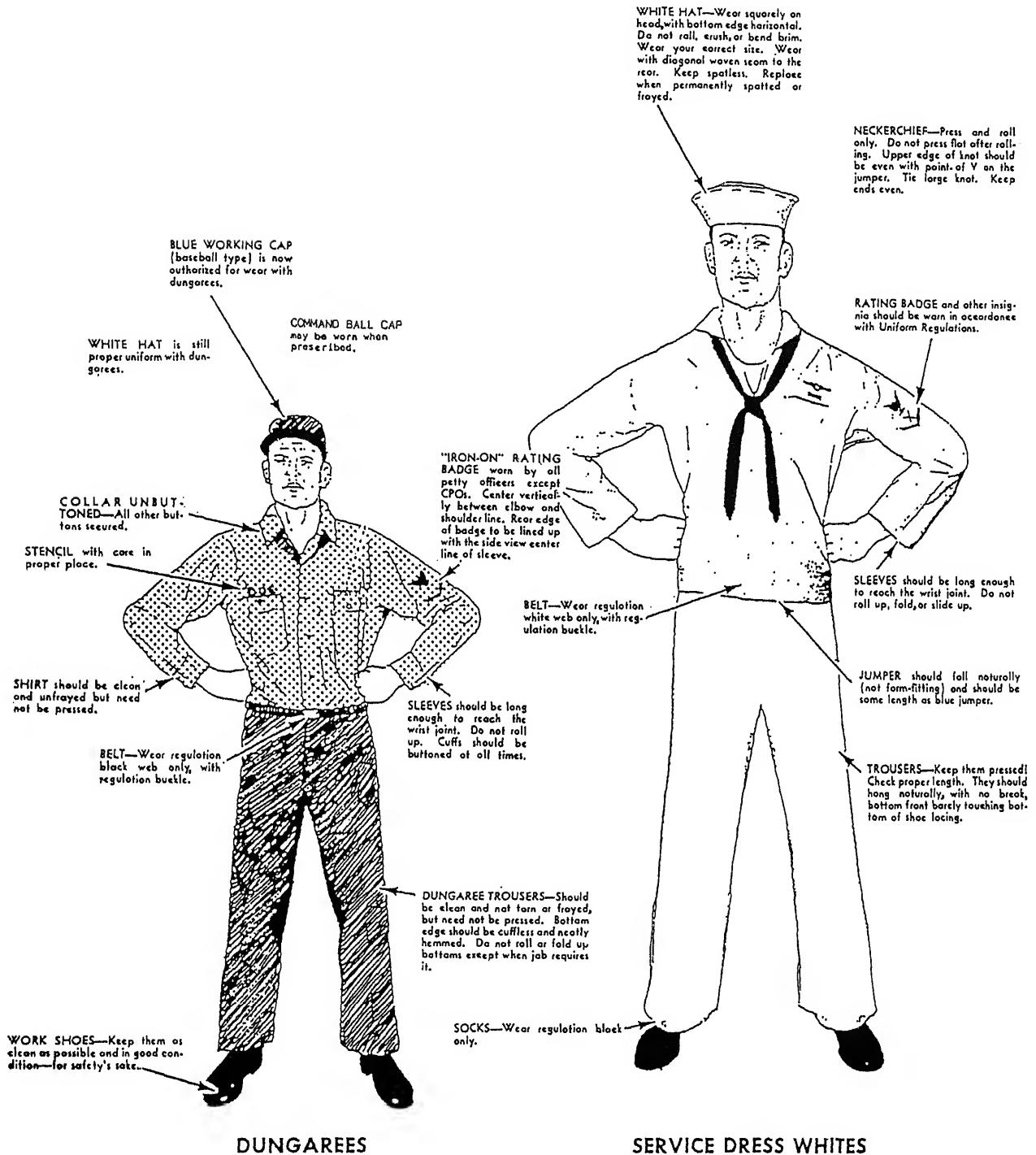


Figure 9-1.—Proper wearing of uniforms—Continued.

Government-issue dress blue jumpers and trousers are made of wool serge. The dress white jumpers and trousers are made of a polyester material designated certified Navy twill.

The dress blue and dress white jumpers must hang straight and be the same length. The sleeves of the dress white jumper, which must hang straight, are cut square at the cuff openings.

The white trousers, having a zipper front, are the same length as the blue trousers. A white belt with a regulation buckle is worn with the white uniform. The belt should be of the same fabric as the uniform.

The neckerchief is 36 inches square and made of black silk, acetate, or other suitable material. It is folded diagonally to form a triangle, then rolled and placed around the neck under the collar. It is tied in a square

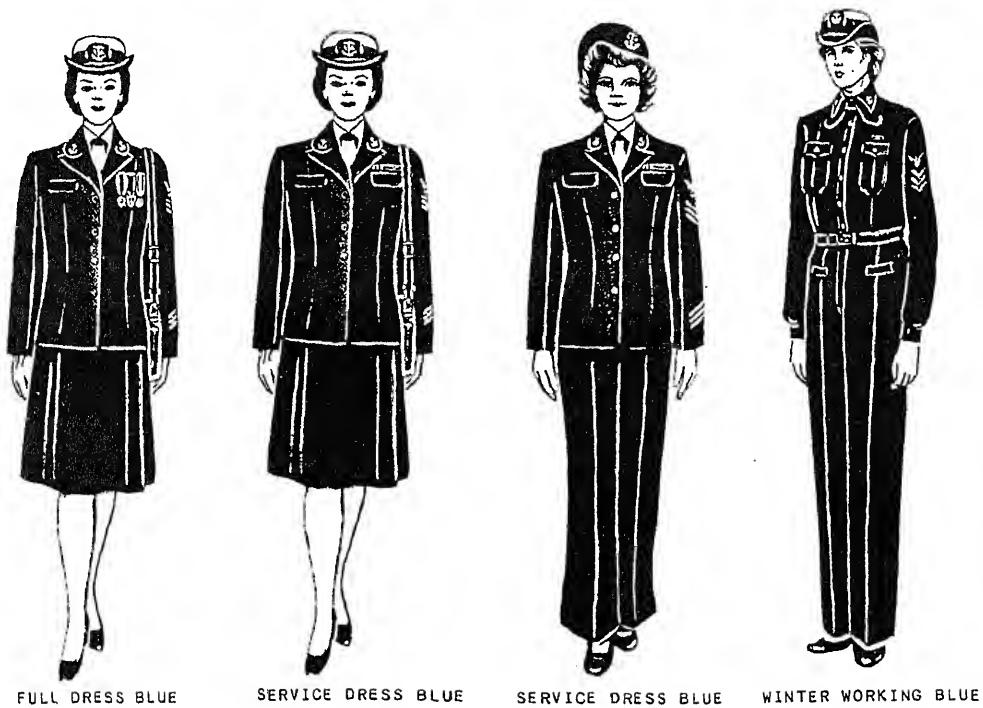


Figure 9-2.-Enlisted women's uniform.

knot with both ends of equal length and falling naturally. The upper edge of the knot must be even with the lowermost point of the collar opening. Neckerchiefs are worn with both the dress blue and the dress white uniforms.

Dungarees and winter working blues are considered to be the working uniforms. Dungarees consist of a blue chambray shirt and blue denim trousers. The white hat is the required headgear for dungarees except when worn within your unit's premises or confines. Command ball caps are authorized for wear within unit premises or working areas. The winter working blue uniform consists of blue winter shirt, blue dress trousers, and white hat (command ball cap may be authorized as with dungarees). Both uniforms are to be worn in working spaces where other uniforms would be unsafe, inconvenient, or would become excessively soiled.

Black shoes and black socks are worn with all uniforms. Shoes may be of leather or a synthetic material with a plain toe.

The pea coat is a blue winter-weight coat that may be prescribed with an appropriate winter uniform. It is an easy-fitting, double-breasted coat with a convertible collar. The pea coat should reach the hips. The sleeves should reach to about three-fourths of the distance from the wrist to the knuckles of the hand when the arms hang naturally at the sides. The pea coat must be worn

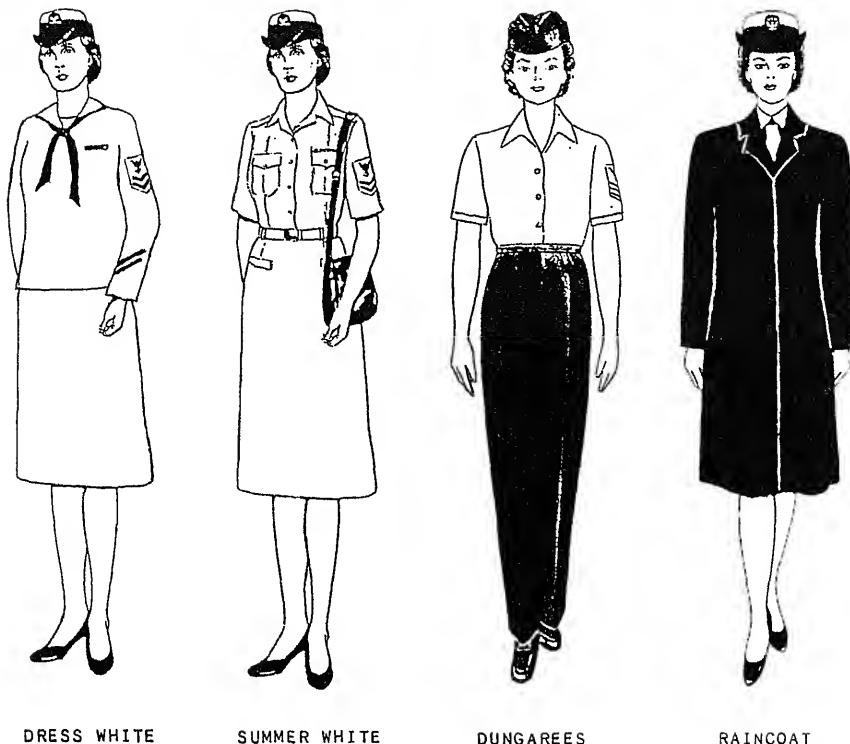
buttoned with the three lower buttons on the right side. In foul weather, the coat may be buttoned to the neck.

Only the regulation navy blue raincoat may be worn with the uniform. It must be worn buttoned with the four lower buttons on the right side. It may, however, be worn buttoned to the neck if desired or if prescribed by your commanding officer.

The blue working jacket is made of navy blue material. It is fully lined with a zipper front. Two military organization patches may be worn on the jacket on an optional basis, subject to the following restrictions: the patch of the command to which you are assigned must be centered on the left breast and a second unit patch of your choice, acceptable to the command, centered on the right breast. The blue working jacket may be worn with the dungarees uniform.

The white hat should be worn squarely on the head, as shown in figure 9-1.

Large medals may be prescribed for wear with the dress blue jumper for special occasions, such as change of command or formal inspections. Medals and neckerchief may be prescribed for wear with the dress white jumper. When large medals are worn with either uniform, the uniform is called full dress.



DRESS WHITE

SUMMER WHITE

DUNGAREES

RAINFOAT

Figure 9-2.—Enlisted women's uniform—Continued.

ENLISTED WOMEN

Enlisted (E-6 and below) women's uniforms and their proper wear are illustrated in figure 9-2 (not all uniforms are shown). Uniforms must be tailored according to the specifications in the following paragraphs.

The enlisted women's service dress blue uniform is worn as shown in the figure. The necktie is tied in a square knot in the front under the collar opening so that the two tie ends are even in length and fall naturally. (Ready-tied ties are also authorized for wear.) Plain black or white gloves may be authorized. The black handbag may be carried with or without the required detachable shoulder strap.

The full dress blue uniform is the same as the service dress blue uniform, with which white gloves are worn. Large medals are worn with full dress uniforms, whereas ribbons are worn with service dress uniforms.

The enlisted women's dress white jumper is worn as shown in figure 9-2. The jumper should fit comfortably with no binding. The sleeves will have inverted creases at the inside and outside edge, hang straight, and be long enough to cover the wristbone. The bottom of the jumper should be loose fitting at the hips, with the hem falling within 1 inch above the bottom of

the pocket opening of the slacks. The slacks have side seam pockets and inverted creases.

The slacks should cover the shoes at the heel by 1 inch. The neckerchief is folded diagonally, corner to corner, rolled continuously, and tied at the bottom of the V-neck opening with a large square knot.

Working uniforms consist of blue belted slacks or belted skirt and blue winter shirt. Dungarees (same as for men—fig. 9-2) are also authorized. Blue anklets, a blue garrison cap, black service shoes, and a black handbag may be worn with each. Command ball caps, beret, and the blue cardigan are other items that may be prescribed.

Black dress shoes are pumps made of smooth leather, calf, or synthetic leather. They will be of plain design with closed heels and toes. The heels will be no higher than 2 5/8 inches nor less than 5/8 inches when measured from the forward edge of the heel. Wedge heels are not authorized. The black service shoes will be laced leather or synthetic oxfords with one line of black stitching around the top of the toe. Again, wedge heels are not authorized.

The combination hat may be worn with all dress uniforms. It is oval in shape, with a stiffened crown. The brim is rolled at the sides and straight in front and back. The hat is worn with a detachable white hat cover. A

garrison cap to match the uniform may be worn with service dress blue uniforms unless the combination hat is prescribed.

The length of both the raincoat type of overcoat and the lightweight black raincoat must correspond to the length of the uniform skirt. The overcoat is worn buttoned by the four lower buttons on the left side. The raincoat is buttoned by the four lower buttons in the center. The top or collar button may be buttoned during inclement weather.

UNIFORM OF THE DAY

The uniform of the day is that uniform prescribed by proper authority to be worn on occasions such as work, liberty, and inspections. The prescribed uniform of the day is published in the Plan of the Day.

PROPER CARE OF UNIFORMS

All Navy personnel must maintain their full requirement of authorized uniforms and are forbidden to possess or wear unauthorized uniforms. Division officers are required to inspect the uniforms of all nonrated personnel at regular intervals. The purpose of the inspection is to ensure that each person has the prescribed outfit. In addition, all nonrated personnel will have a seabag (clothing) inspection prior to transfer. Insignia, decorations, medals, badges, and ribbons are worn as prescribed. All uniforms must be kept scrupulously clean; gold bullion lace, devices, and insignia must be kept free of tarnish and corrosion. Shoes should be kept well shined and in good repair.

Specific practices that must be avoided when the uniform is worn are as follows:

1. Frayed, torn, ill-fitting, badly wrinkled, badly stained, or dirty uniforms (A little leeway is permitted in the dungaree uniform, but if it is damaged beyond the possibility of a professional-looking repair, the item of clothing should be discarded.)
2. Unbuttoned coats
3. Discolored or frayed piping
4. Rolled up sleeves, hat not squared, cuffs unbuttoned, or shirttails hanging out
5. Missing buttons
6. Cracked, badly stained, or nonregulation shoes

7. Badly faded, discolored, or frayed ribbons or rate/rating badges; tarnished or corroded metal devices

8. Incomplete or nonregulation uniforms

You may not wear any uniform, article, insignia, or decoration that is not yours or to which you are not entitled.

You may be permitted to have civilian clothing in your possession aboard ship or at a naval activity ashore. You may wear such clothing while leaving or returning to your ship or station, while awaiting transportation after permission to leave the ship has been given, while on authorized leave of absence, liberty, or in any off-duty status ashore. Area commanders and the senior officer present may suspend the wearing of civilian clothing to meet local conditions.

When wearing civilian clothing, you must ensure that your dress and personal appearance are appropriate for the occasion and will not tend to bring discredit upon the naval service. Current styles and fashions are authorized. Tank-top shirts, white undershirts worn as outer garments, cutoff shorts, and shower sandals are considered appropriate civilian attire for occasions such as picnics, athletic events, and other daytime activities of an extremely casual nature. The above items will not otherwise be worn within the confines of a military installation.

In cases of individuals who do not wear civilian clothing as outlined or who fail to maintain proper and adequate uniforms, individual commands may suspend the privilege of wearing civilian clothing to and from the command.

MARKING ENLISTED CLOTHING

Articles of clothing must be marked legibly with the owner's name and social security number. For this purpose, black marking fluid is used for marking white clothing and chambray shirts. White marking fluid is used for marking blue clothes and dungaree trousers. Where labels are provided, they are marked with indelible ink.

Men's and women's clothing should be marked with a 1/2-inch stencil or stamp if available. If a 1/2-inch stamp is not available, a stencil no larger than 1 inch may be used.

Required items of men's and women's clothing will be marked according to current Navy uniform regulations and as indicated in figure 9-3. Where the word *right* or *left* appears in marking instructions, it

<u>ITEM</u>	<u>LOCATION</u>
1. Shirts:	<ul style="list-style-type: none"> a. Blue chambray—Vertically, beginning one inch from the bottom on the inner side of the right front facing on which the buttons are sewn; last name on right front, one (1) inch above pockets. b. Winter blue—Vertically beginning one inch from the bottom on the inner side of the right front facing on which the buttons are sewn. c. White summer—Same as winter blue.
2. Jumper, (blue or white)	Turn inside out, front down, collar away from you, stencil three initials, one-quarter inch below collar seam to left of center, and last four digits of SSN one-quarter inch below collar seam to right of center; fill in manufacturer's tag, using ball point pen.
3. Trousers:	<ul style="list-style-type: none"> a. Blue dress—On designated nameplate. Turn trousers inside out, fly down, waistband away from you, stencil three initials and last four digits of SSN on rear pocket, one-quarter inch below horizontal seam using white ink; fill in manufacturer's tag using ball point pen. b. Dungaree—On the waistband inside front at the right of center line, last name will be stenciled or embroidered in white on the outside, one inch above right hip pocket; centered. c. White long—Turn inside out, fly down, waistband away from you, stencil three initials and last four digits of SSN on left rear pocket in between the horizontal seams; fill in manufacturer's tag using ball point pen.
4. Caps:	<ul style="list-style-type: none"> a. Command ball—Initials only on sweatband. b. Knit (watch)—Initials only, on a label on the inside. c. White hat—On the inside of the hem at the right on the center line on the back.
5. Jackets:	<ul style="list-style-type: none"> a. Blue windbreaker—On the inside of the hem at the right on the center line on the back. b. Blue working—On the inside of the hem at the right of the center line of the back; last name only on the left one inch above the pocket; centered. Will be white.
6. Peacoat:	On label located on the inside breast pocket.
7. Raincoat:	Inside on lining, 3 inches below collar seam.
8. Sweater:	On label on the inside below the back of the collar.
9. Shoes:	Initials only inside, near top.
10. Socks:	Initials only on the foot.
11. Drawers:	On the outside of the right half of the waistband, or immediately underneath the waistband on drawers with elastic waistbands.
12. Undershirts:	On outside of the front, one inch from the bottom of the shirt, right of the center.
13. Belts:	Inside near tab.
14. Gloves:	Initials only on inside, near the top.
15. Neckerchief:	Diagonally across the center before folding. Initials only.
16. Necktie, (clip-on or hand tied)	Center back, inside. Initials only.

Figure 9-3.—Location for markings men's and women's clothing.

WOMEN

<u>ITEM</u>	<u>LOCATION</u>
1. Coat, (blue)	On designated name label.
2. Jumper, (white)	Same as for men.
3. Shirts:	<ul style="list-style-type: none">a. Blue chambray—Vertically;, beginning one inch from the bottom on the inner side of the right front fold on which the buttons are sewed. The chambray shirt is stencilled, or embroidered in black, last name only, on right front, one inch above the pocket; centered. Maternity chambray shirts that do not have pockets will be stencilled in the same relative position as the blue chambray shirt, with pockets.b. Blue, winter—Vertically, beginning one inch from the bottom on the inner side of the right front fold on which the buttons are sewed.c. White (SS or LS)—Same as blue winter.
4. Skirts:	<ul style="list-style-type: none">a. Blue, belted—Center front, inside on waistband.b. Blue unbelted—Center front, inside on waistband.c. Blue , formal—Center front, inside on waistband.d. White, belted—White certified Navy twill skirts will be marked on the name tage sewn on the liner directly underneath the right pocket.
5. Slacks, (blue, white, or dungaree)	Center back, inside on waistband.
6. Caps:	<ul style="list-style-type: none">a. Command ball—Initials only on sweatband.b. Knit (watch)—Initials only on label on the inside.c. Beret—On designated nameplate.d. Combination whtie—On designated nameplate.e. Garrison blue—On designated nameplate.
7. Jackets:	<ul style="list-style-type: none">a. Blue windbreather—On the inside of the hem at the right on the center line on the back.b. Blue working—On the inside of hem at the right of the center line of the back and the last name only on the left front, 1 inch above the pocket; centered. Will be white.
8. Overcoat:	On designated nameplate; and inside left front panel.
9. Peacoat:	On the label located on the inside breast pocket.
10. Raincoat:	Inside on lining, 3 inches below collar seam.
11. Sweater:	On the manufacturer's tag.
12. Scarf, (blue or white)	Center back, inside.
13. Shoes, (black dress or black service)	Initials only inside, near top.
14. Socks, (black)	Initials only on the foot.
15. Undershirt:	On outside of the front, one inch from the bottom of the skirt and at right of the center.

Figure 9-3.—Location for marking men's and women's clothing—Continued.

ITEMLOCATION

16. Belts, (black or white)	Inside: last name and the first and middle initials only.
17. Gloves, (black or white)	Initials only on inside, near the top.
18. Handbag:	On manufacturer's tag inside large pocket.
19. Necktie:	Inside, center; back.
20. Neckerchief:	Same as for men.

Figure 9-3.—Locations for marking men's and women's clothing—Continued.

means the owner's right or left when wearing the garment. On towels and similar articles, it means the owner's right or left when standing behind the article.

Your clothing is marked for good reasons. When you send your clothing to the laundry, there must be a method to identify it. If your clothing is lost or misplaced, the only way it can be recovered is if it has been properly marked.

TRANSFER OF CLOTHING

No transfer or exchange of an enlisted person's uniform clothing will be made without the commanding officer's authorization. When such transfers or exchanges are authorized or when clothing belonging to deserters is sold, obliterate the former owner's name with a red "D.C." stamp. The purchaser's name will be placed above, below, or next to it.

ENLISTED RATE/RATING INSIGNIA

In the enlisted branch of the Navy, a field of work or an occupation is called a rating. Levels within the rating are called rates. In the case of a Boatswain's Mate second class (BM2), for example, Boatswain's Mate is the rating and second class is the rate. In other words, rating is the job or occupation, while rate is the paygrade of the person.

As a newcomer without previous military experience, you probably entered the service as a recruit in paygrade E-1. This is the basic paygrade in the armed forces grading structure. From the recruit rate, you began to absorb training in one of the six broad occupational groups. Your occupational group is identified by a group rate mark, which is worn on the

left sleeve of jumpers and white summer shirts. (Paygrade E-1 does not wear a group rate mark.) Group rate marks are shown in figure 9-4.

Personnel in paygrades E-1, E-2, and E-3 who have qualified in a particular rating will wear the specialty mark of that rating. This is called a striker mark. The striker mark is worn immediately above the group rate mark. If you were a qualified striker and in paygrade E-1, you would wear the striker mark even though you would not wear the group rate mark.

After advancing to Seaman (or Fireman, Airman, or other distinct occupational group), you will want to qualify for the lowest petty officer rate—petty officer third class. The rating you are trying for will depend upon your personal qualifications and desires. At this time, you will enter the occupational field that you will normally follow for the rest of your Navy career. Subject to standard instructions, changes from one field to another are allowed quite freely in the lower paygrades before a person has been intensively trained in one particular field. This allows time to find the choice of work a person desires in the Navy. However, once you have advanced to a senior petty officer level, changes to another field are seldom permitted.

As mentioned before, every enlisted person in the Navy, E-1 through E-9, has a rate. You must be able to identify a person's rate. To enable you to do this, every enlisted person in the Navy, with the exception of E-1, is required to wear an insignia indicating rate on the left arm of the service uniform. This is usually called a rating badge. Figure 9-4 identifies all enlisted rate insignia—E-1 through E-9.

APPRENTICE
TRAINING
GRADUATES



Seaman

E-2



E-3



- 1-GENERAL SEAMAN-SHIP
- 2-SHIP OPERATIONS
- 4-SHIP MAINTENANCE
- 8-WEAPONS CONTROL
- 9-ORDNANCE SYSTEMS
- 10-SENSOR OPERATIONS
- 12-DATA SYSTEMS
- 15-ADMINISTRATION
- 16-LOGISTICS
- 17-MEDIA
- 18-MUSICIAN
- 20-CRYPTOLOGY
- 21-COMMUNICATIONS
- 22-INTELLIGENCE



Fireman



- 3-MARINE ENGINEER-ING
- 4-SHIP MAINTENANCE



Airman



- 13-CONSTRUCTION

- 5-AVIATION MAINTEN- NANCE/WEAPONS
- 6-AVIATION GROUND SUPPORT
- 7-AIR TRAFFIC CON- TROL
- 11-WEAPONS SYSTEMS SUPPORT
- 16-LOGISTICS
- 17-MEDIA
- 23-METEOROLOGY
- 24-AVIATION SENSOR OPERATIONS



- 14-HEALTH CARE (MEDICAL)



- 14-HEALTH CARE (DENTAL)



PETTY OFFICER
3RD CLASS

E-4



PETTY OFFICER
2ND CLASS

E-5



PETTY OFFICER
1ST CLASS

E-6



CHIEF PETTY
OFFICER

E-7



SENIOR CHIEF
PETTY OFFICER

E-8



MASTER CHIEF
PETTY OFFICER

E-9

E-1 personnel do not wear rate insignias.
Personnel who have completed apprenticeship
training are authorized to wear the appropriate badge.



RED



GREEN



LIGHT BLUE

Figure 9-4.—Navy enlisted rate insignia.

In addition to your rate, your rating (specialty) is also identified on your rating badge. Rating insignia for all Navy ratings are shown in figure 9-5.

SERVICE STRIPES

Service stripes (called hash marks) indicate length of service. One stripe is worn on the left sleeve of jumpers for each full 4 years of active or Reserve service

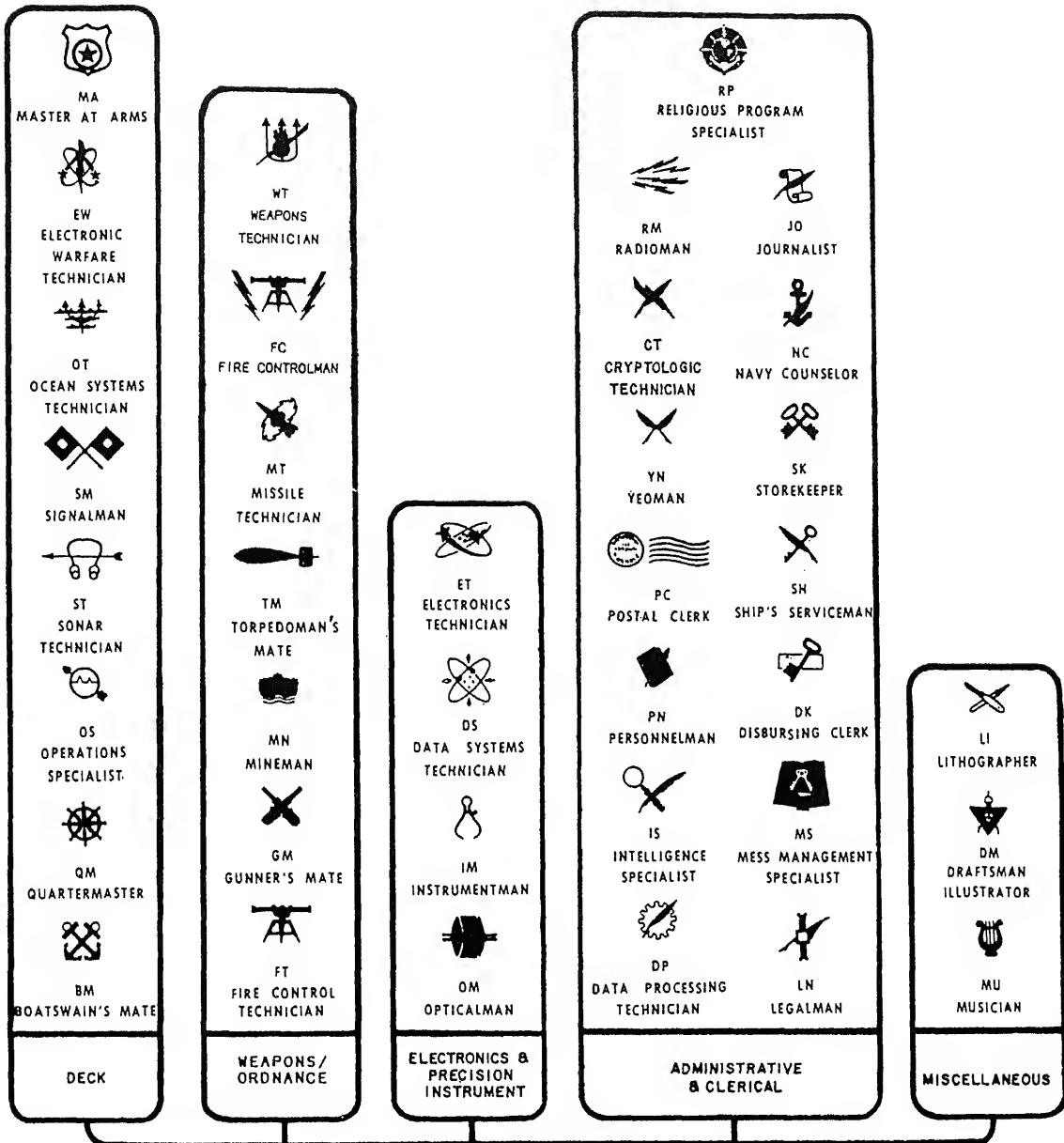


Figure 9-5.—Navy enlisted rating insignia.

in any of the armed forces, or any combination thereof, such as 2 years in the Army and 2 years in the Navy. Scarlet hash marks and rating badges are worn on blue uniforms; navy blue is worn on white uniforms.

Gold rating badges and service stripes are worn when good conduct in the naval service totals 12 continuous years. Naval service requirement is met by continuously serving in the Regular Navy, Naval Reserve, Naval Ready Reserve, Regular Marine Corps,

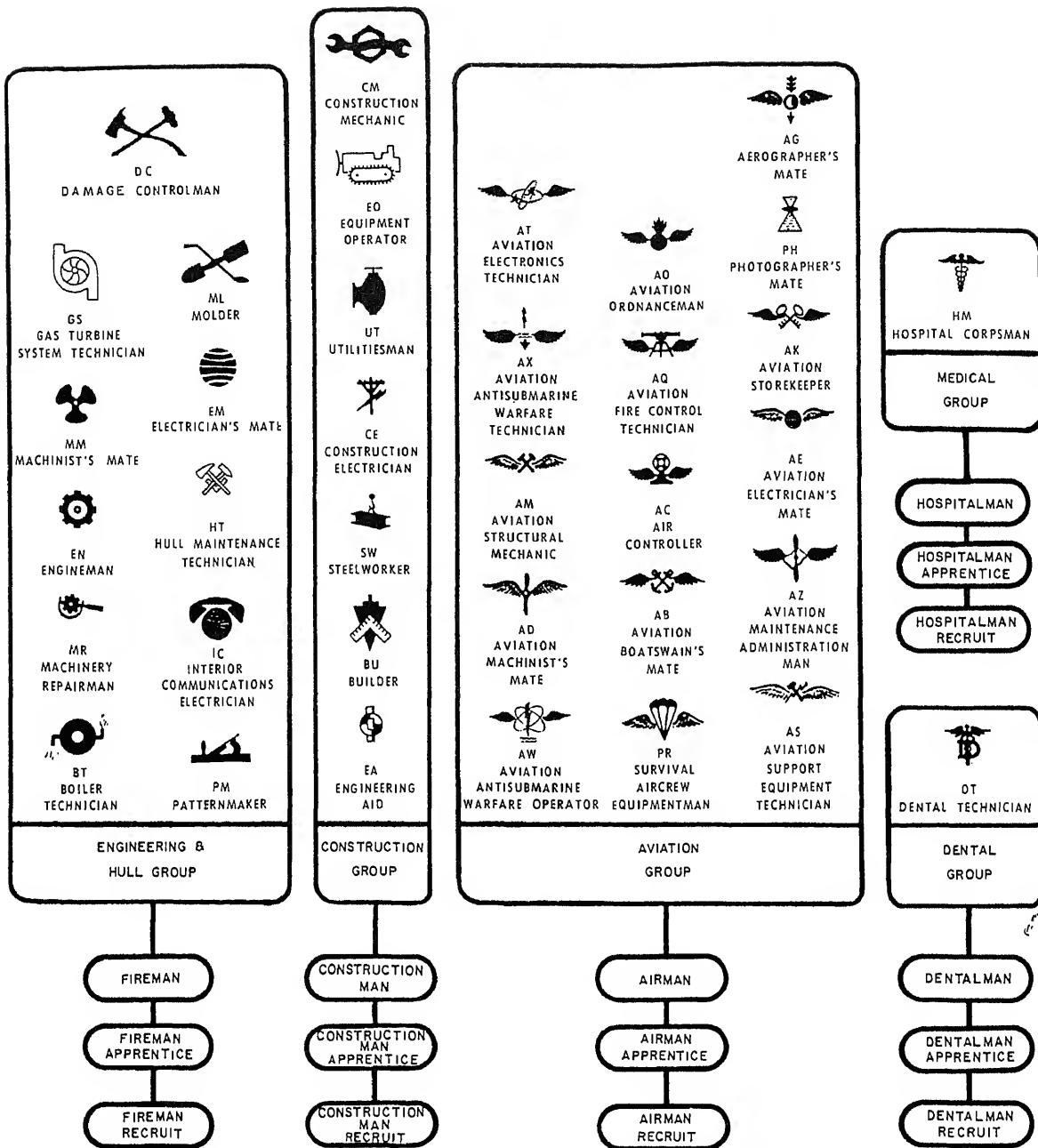


Figure 9-5.—Navy enlisted rating insignia—Continued.

or Marine Corps Ready Reserve. More information about authority to wear gold rating badges and service stripes can be found in chapter 9 of *U.S. Navy Uniform Regulations*, NAVPERS 15665G.

PAYGRADE INSIGNIA OF THE U.S. NAVY AND OTHER U.S. ARMED FORCES ENLISTED PERSONNEL

The insignia of all the U.S. armed forces enlisted personnel are shown in figure 9-6.

The most senior enlisted person in the U.S. Navy is the master chief petty officer of the Navy (MCPON).

(The senior enlisted insignia for the other armed services are shown directly under the MCPON in fig. 9-6.)

The rating insignia of the MCPON is similar to that of all other master chief petty officers except that it has three gold stars in line above the eagle and a gold star in the space between the eagle and the upper chevron.

Major commands have a command master chief petty officer (C M/C). The C M/C insignia differs from the MCPON in that there are two silver stars above the

PAY GRADE	ENLISTED										N
	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9		
NAVY	SEAMAN RECRUIT	SEAMAN APPRENTICE	SEAMAN	PETTY OFFICER THIRD CLASS	PETTY OFFICER SECONO CLASS	PETTY OFFICER FIRST CLASS	CHIEF PETTY OFFICER	SENIOR CHIEF PETTY OFFICER	MASTER CHIEF PETTY OFFICER	MASTER CHIEF PETTY OFFICER OF THE NAVY	
MARINES	PRIVATE	PRIVATE FIRST CLASS	LANCE CORPORAL	CORPORAL	SERGEANT	STAFF SERGEANT	GUNNERY SERGEANT	FIRST SERGEANT	SERGEANT MAJOR	SERGEANT MAJOR OF THE MARINE CORPS	
ARMY	PRIVATE	PRIVATE FIRST CLASS	CORPORAL	SERGEANT	STAFF SERGEANT	SERGEANT FIRST CLASS	FIRST SERGEANT	COMMAND SERGEANT MAJOR	SERGEANT MAJOR	SERGEANT MAJOR OF THE ARMY	
AIR FORCE	AIRMAN BASIC	AIRMAN	AIRMAN FIRST CLASS	SENIOR AIRMAN	SERGEANT	STAFF SERGEANT	TECHNICAL SERGEANT	MASTER SERGEANT	SENIOR MASTER SERGEANT	CHIEF MASTER SERGEANT	CHIEF MASTER SERGEANT OF THE AIR FORCE
						ALL STARS SILVER					

* AUTHORIZED ONLY WHILE SERVING AS THE SENIOR ENLISTED MEMBER OF ANY BRANCH OF MILITARY SERVICE.

Figure 9-6.—Insignia of U.S. armed forces enlisted personnel.

eagle, and there is a silver star that replaces the specialty mark.

You should also be familiar with the rating structure of the other branches of the U.S. military. Refer to figure 9-6 for a comparison of the Navy, Marine Corps, Army, and Air Force enlisted structure.

GRADE INSIGNIA/CORPS DEVICES—U.S. NAVAL OFFICER

The paygrade of an enlisted person is referred to as a rate. An E-4 is a petty officer third class. The paygrade of a commissioned officer is called a rank. A lieutenant is an O-3. Commissioned officers hold their positions of command by the authority given them by the President of the United States.

An officer of a given grade is junior to all officers of higher grades and senior to all officers of lower grades. Any commissioned officer is senior to any

warrant officer or enlisted person. When officers are of the same grade, then the officer first commissioned in that grade outranks (takes precedence over) officers commissioned at later dates. In other words, officers of the same grade rank according to their date of commission—the earlier the date, the more senior the officer. If the officers have the same date of rank, then they take precedence according to a numerical listing kept by the Navy Department. Figure 9-7 shows the rank insignia of U.S. naval officers as well as the insignia of other branches of the U.S. armed forces.

Officers are also divided into line officers and staff corps officers. A star is worn on the sleeve or shoulder board of the line officer, depending on the uniform. The line category is subdivided into unrestricted and restricted line. Only unrestricted line officers are eligible for command at sea and the command of aircraft squadrons, fleets, and those shore bases (such as naval bases and naval air stations) that require an unrestricted

WARRANT		COMMISSIONED												
PAY GRADE	W-1	W-2	W-3	W-4	0-1	0-2	0-3	0-4	0-5	0-6	0-7	0-8	0-9	0-10
NAVY	GOLD BLUE	SILVER BLUE	SILVER BLUE	SILVER BLUE	GOLD	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
	CHIEF WARRANT OFFICER W-4	CHIEF WARRANT OFFICER W-3	CHIEF WARRANT OFFICER W-2	ENSIGN	LIEUTENANT JUNIOR GRADE	LIEUTENANT	LIEUTENANT COMMANDER	CAPTAIN	REAR ADMIRAL LOWER HALF	REAR ADMIRAL UPPER HALF	VICE ADMIRAL	ADMIRAL	FLEET ADMIRAL	
	GOLD SCARLET	SILVER SCARLET	SILVER SCARLET	SILVER SCARLET	GOLD	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
	CHIEF WARRANT OFFICER W-3	CHIEF WARRANT OFFICER W-2	WARRANT OFFICER W-1	CHIEF WARRANT OFFICER W-4	SECOND LIEUTENANT	FIRST LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL	GENERAL
	SILVER BLACK	SILVER BLACK	SILVER BLACK	SILVER BLACK	GOLD	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
	CHIEF WARRANT OFFICER W-3	CHIEF WARRANT OFFICER W-2	WARRANT OFFICER W-1	CHIEF WARRANT OFFICER W-4	SECOND LIEUTENANT	FIRST LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL	GENERAL OF THE ARMY
ARMY					GOLD	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
	CHIEF WARRANT OFFICER W-2	CHIEF WARRANT OFFICER W-1	WARRANT OFFICER W-1	CHIEF WARRANT OFFICER W-4	SECOND LIEUTENANT	FIRST LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL	GENERAL
AIR FORCE					GOLD	SILVER	GOLD	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER	SILVER
	CHIEF WARRANT OFFICER W-2	CHIEF WARRANT OFFICER W-1	WARRANT OFFICER W-1	CHIEF WARRANT OFFICER W-4	SECOND LIEUTENANT	FIRST LIEUTENANT	CAPTAIN	MAJOR	LIEUTENANT COLONEL	COLONEL	BRIGADIER GENERAL	MAJOR GENERAL	LIEUTENANT GENERAL	GENERAL OF THE AIR FORCE

Figure 9-7.—Insignia of officers of the U.S. armed services.

LINE



FIVE-POINTED STAR

MEDICAL CORPS

GOLD OAK LEAF,
SILVER ACORN IN
CENTER

SUPPLY CORPS

SPRIG OF THREE OAK
LEAVES AND THREE
ACORNSCHAPLAIN CORPS
(Christian)

LATIN CROSS

CHAPLAIN CORPS
(Jewish)STAR OF DAVID
ATTACHED TO THE
TOP CENTER OF
TABLETS OF THE LAWTWO GOLD SPRIGS OF
TWO OAK LEAVES
EACH, SILVER ACORN
IN EACH SPRIG

DENTAL CORPS

GOLD OAK LEAF WITH
SILVER ACORN ON
EACH SIDE OF
STEMMEDICAL SERVICE
CORPSGOLD OAK LEAF
ATTACHED TO A
SLANTING TWIGLEADER, U.S.
NAVY BAND*

GOLD LYRE

NURSE CORPS



GOLD OAK LEAF

JUDGE ADVOCATE
GENERAL'S CORPSTWO GOLD OAK LEAVES,
SILVER MILL RIND
IN CENTER

* ALSO LEADER OF U. S. NAVAL ACADEMY BAND AND
THOSE COMMISSIONED IN THE FIELD OF MUSIC

Figure 9-8.—Line and staff corps officers' insignia.

line officer as commanding officer. Included in this category are limited duty officers (LDOs) who have been specifically authorized to assume such command and certain naval aviators. Restricted line officers are those designated for engineering or other special duty, such as communications, naval intelligence, photography, and other technical fields. They are not eligible for command at sea but may assume command of designated shore facilities.

Staff corps officers are specialists in certain areas, such as supply and medicine. They wear staff corps insignia (fig. 9-8). A doctor can become the commanding officer (CO) of a hospital or a medical school or the chief of the Bureau of Medicine. A supply officer can become the CO of a supply depot or a school or the head of the Navy Supply Systems Command.

When officers are of the same grade and date of commissioning, but of different corps, they take precedence in the following order: (1) Line, (2) Medical, (3) Supply, (4) Chaplain, (5) Civil Engineer, (6) Judge Advocate General, (7) Dental, (8) Medical Service, and (9) Nurse.

In addition to regular commissioned officers, the Navy has another group of officers called commissioned warrant officers.

It has long been demonstrated that the Navy needs specialists to supervise the operation of equipment and weapons and needs enlisted personnel to maintain them. The gap between enlisted personnel and commissioned officers is filled by chief warrant officers. They are former enlisted personnel selected for warrant status because of their professional ability and for their

SECURITY
TECHNICIAN



ENCIRCLED
STAR WITHIN
A SHIELD

BOATSWAIN



OPERATIONS
TECHNICIAN



ORDNANCE
TECHNICIAN



COMMUNICATIONS
TECHNICIAN

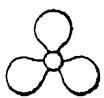


ELECTRONICS
TECHNICIAN

ENGINEERING
TECHNICIAN/NUCLEAR
POWER TECHNICIAN



HELIUM ATOM



SHIP'S CLERK



FLAMING
SPHERICAL
SHELL



LIGHTNING
LIGHTNING BOLTS

AVIATION
BOATSWAIN



HELUM ATOM

THREE-BLADED
PROPELLER

CROSSED
QUILL
PENS

CARPENTER'S
SQUARE

CROSSED FOUL
ANCHORS, WINGED

AVIATION
ORDNANCE
TECHNICIAN

AVIATION
MAINTENANCE
TECHNICIAN

AVIATION
ELECTRONICS
TECHNICIAN

AEROGRAPHER

PHOTOGRAPHER



FLAMING
SPHERICAL
SHELL, WINGED

TWO-BLADED
PROPELLER,
WINGED

HELIUM ATOM,
WINGED

WINGED CIRCLE,
ARROW THROUGH

CAMERA

BANDMASTER

AIR TRAFFIC
CONTROL
TECHNICIAN

CRYPTOLOGIC
TECHNICIAN

SUPPLY CLERK
AND FOOD SERVICE

CIVIL ENGINEER
CORPS



TWO GOLD SPRIGS
OF TWO OAK LEAVES
EACH; SILVER ACORN
IN EACH SPRIG

LYRE

WINGED
MICROPHONE

CROSSED QUILL
PEN AND SPARK

SPRIG OF THREE
OAK LEAVES
AND THREE ACORNS

PHYSICIAN'S
ASSISTANT

INTELLIGENCE
TECHNICIAN

DATA
PROCESSING
TECHNICIAN

EXPLOSIVE
ORDNANCE
DISPOSAL
TECHNICIAN

AVIATION
OPERATIONS
TECHNICIAN

CADUCEUS

YEOMAN'S QUILL
SUPERIMPOSED
ON MAGNIFYING
GLASS



QUILL PEN
SUPERIMPOSED
ON GEAR



MINE SUPERIMPOSED
ON CROSSED BOMB
AND TORPEDO

TWO CROSSED ELECTRON
ORBITS, WINGED, WITH
LIGHTNING BOLT PASS-
ING TOWARD WAVES

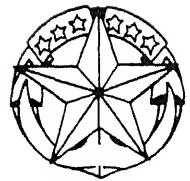
Figure 9-9.—Warrant officers' specialty insignia.

demonstrated qualities of leadership, loyalty, and devotion to duty.

The old warrant officer structure included four grades. Personnel in grade W-1 were called warrant officers and received their warrants from the Secretary of the Navy; those in grades W-2, W-3, and W-4 were

commissioned and were called chief warrant officers. The present structure does not include W-1; all warrant officers are commissioned as W-2s.

Chief warrant officers wear collar devices or sleeve insignia symbolic of their specialty in the same manner as staff corps officers, as shown in figure 9-9.



COMMAND AT SEA

COMMAND ASHORE/PROJECT
MANAGER

SMALL CRAFT



CRAFTMASTER



SUBMARINE



SSBN DETERRENT PATROL



AVIATION WARFARE SPECIALIST



NAVAL AVIATOR



NAVAL PARACHUTIST



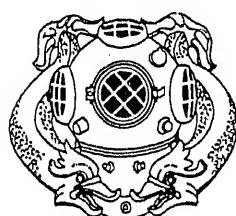
AIRCREW



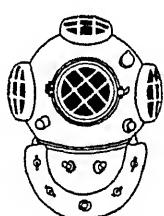
SPECIAL WARFARE

SURFACE WARFARE (OFFICER)
ENLISTED INSIGNIA HAS
CROSSED CUTLASSES

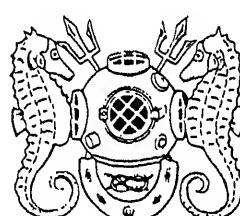
EXPLOSIVE ORDNANCE DISPOSAL



DIVER FIRST CLASS



DIVER SECOND CLASS



MASTER DIVER



CAREER COUNSELOR

NAVY FLEET/FORCE/COMMAND
MASTER CHIEF

Figure 9-10.—Breast insignia.

SPECIAL INSIGNIA

Special insignia are those worn on the breast to indicate special qualifications or designations (fig. 9-10; not all insignias are shown). Examples of these are as follows:

The Command at Sea insignia is worn by persons below flag rank who have or have had command of commissioned ships or aviation squadrons at sea.

Officers currently in command wear the insignia on the right breast. Those not presently in command, but who have held command, wear it on the left breast below any ribbons, medals, or other insignia.

The Command Ashore/Project Manager insignia is worn by officers below flag rank who have or have had command ashore or served as a project manager. It is worn in the same manner as the Command at Sea insignia.

The Small Craft insignia is worn by enlisted and officer personnel currently serving or who have previously served as an officer in charge of a small craft. Enlisted personnel wear silver and officers wear gold when they are authorized to wear these special insignias. This insignia is worn in the same manner as the Command at Sea insignia.

The Surface Warfare insignia is worn by officers and enlisted personnel who have qualified in all phases of surface warfare.

The Submarine insignia is worn by personnel who have qualified to serve in submarines. In addition to the basic insignia, other submarine insignia include those for submarine medical, engineer, and supply officers and for all who participated successfully in combat patrols.

The Aviation insignia is worn by personnel qualified to serve in flight. In addition to the Aviation insignia, other insignia are worn by flight officers, flight surgeons, flight nurses, aircrewmen, astronauts, and air warfare specialists.

The Special Warfare insignia is worn by personnel qualified in underwater and beach reconnaissance, demolition, and special warfare tactics. They are usually associated with underwater demolition or sea-air-land (SEAL) team detachments.

The Explosive Ordnance Disposal insignia is worn by personnel who are qualified in the identification and safe disposal of many different types of ordnance produced by the United States, our allies, and our enemies.

The Diver insignia is worn by officer and enlisted personnel qualified in various classes of diving. The Diver insignia is silver with the exception of the Diving Officer and the Diver Medical insignia, which are gold.

The SSBN Deterrent Patrol insignia is worn by personnel who successfully complete a patrol on a fleet ballistic missile submarine. Gold and silver stars are mounted on the scroll to indicate each successful patrol following that for which the original insignia was awarded.

Most insignia worn by officers and enlisted personnel are identical, except that those worn by officers are gold, while those worn by enlisted personnel are silver. Examples of some of these are Submarine, Small Craft, and Explosive Ordnance Disposal. Two exceptions to this are the Enlisted Aircrew insignia and the Naval Parachutist's insignia, which are gold.

Another type of special insignia worn by naval personnel is identification badges, which are displayed by those engaged in Presidential service or assigned to certain staffs, such as the organization of the Joint Chiefs of Staff (JCS) or the Office of the Secretary of Defense.

The identification badges worn by the command/force/fleet master chief and command career counselor are shown in figure 9-10.

AWARDS

An award is any decoration, medal, badge, ribbon, or letter of commendation given to an individual or unit in recognition of outstanding acts or service performed.

There are five broad categories of awards:

1. Military decorations
2. Unit awards
3. Nonmilitary decorations
4. Campaign and service awards
5. Foreign decorations and non-U.S. service awards

A military decoration is an award given to individuals as public recognition for acts of heroism or for particularly meritorious service. Similar awards are given to units. (Unit awards are worn only by personnel who were attached to the unit during the period covered by the citation.)

Some examples of military decorations are the Medal of Honor, Navy Cross, Distinguished Service Medal, and Purple Heart.

The first military decoration awarded to individuals by this country was the Purple Heart. The Purple Heart was founded by George Washington in 1782. It was awarded for unusual gallantry and/or extraordinary fidelity and essential service. Only three people were awarded the original Purple Heart. The awards were made for action during the revolutionary war. One hundred and fifty years later, in 1932, the Purple Heart decoration was revived by the President of the United States.

The basis for this award was changed from the original idea. As reestablished, the Purple Heart is now awarded for wounds received as a result of enemy action.

Some of the unit awards are the Presidential Unit Citation, Navy Unit Commendation, and the Navy "E."

Nonmilitary decorations are awarded for various actions by an individual. A few examples are the Presidential Medal of Freedom, the Gold and Silver Life Saving Medals, and the National Sciences Medal.

Service awards are issued to denote participation in a war, a campaign, or an expedition.

The last category of awards is foreign decorations and non-U.S. service awards. *U.S. Navy Uniform Regulations* lists the foreign awards that may be worn.

Normally, awards are medals suspended from a pin by a distinctive ribbon; but there are exceptions, such as the Presidential Unit Citation, Navy Unit Commendation, Meritorious Unit Commendation, and Combat Action Ribbon. These awards are not medals but are ribbons that denote the citation.

Medals are attached to the uniform just above the left breast pocket. Up to three medals are worn side by side; when there are more than three, they are attached to a bar in an overlapping fashion with a maximum of five medals to a row (in their order of precedence).

Except on special occasions (such as a personnel inspection), replicas of the medal suspension ribbons are worn. These ribbons are part of the service dress uniform. They are worn centered 1/4 inch above the left breast pocket, with no space between ribbons or between rows. Each row may contain no more than three ribbons. A row of fewer than three ribbons is centered above a full row. Persons possessing four or more ribbons must wear a minimum of three but may wear all if desired. The ribbons, which may be either sewed to the uniform or attached to bars, are worn in their order of precedence—top down and from inboard to outboard. Transparent covering or the use of preservatives is not permitted. No alteration may be made that would change the appearance of the ribbons. When medals are prescribed as part of the uniform, unit award ribbons are worn on the right breast.

IDENTIFICATION CARDS

The armed forces identification card is used to identify you as a member of the U.S. armed forces. It is not a pass. It remains the property of the United States. Anyone altering, damaging, lending, counterfeiting, or using the card in an unauthorized manner is subject to disciplinary action.

You must carry the card at all times, and you may not surrender it except as required by proper military authority for identification or investigation or while in disciplinary confinement. You cannot give your ID card

as security for the return of property or equipment provided by civilian or naval recreational activities.

Cards issued to active-duty personnel are green; those issued to persons on inactive duty are red. Information contained on the cards includes name, social security number, rank or rate, photograph, expiration date, blood type and Rh factor, and date of birth.

The active-duty ID card must be surrendered by the holder for the following reasons:

1. It is replaced.
2. The holder is released from extended active duty.
3. It is required by proper military authority for identification or investigation purposes, or while in disciplinary confinement.

The active-duty ID card may be replaced for the following reasons:

1. To show a change in rank or rate
2. To show a change in the card's expiration date
3. To replace a lost, stolen, or destroyed card
4. To correct an error
5. To replace a mutilated card
6. To change data that makes the card questionable as a means of identification
7. To effect a name change

Since the armed forces ID card (active) meets all the requirements of article 17 of the Geneva Convention pertaining to the treatment of prisoners of war, it therefore serves as identification for that purpose. In the event of capture as a prisoner of war, you may show your ID card to the capturing authorities but may not surrender it to them.

Identification tags are designed for the identification and casualty reporting of members who become casualties and for grave registration of members who die in a combat zone. As soon as possible after reporting for active duty, each Navy member is issued two complete identification tags.

Identification tags are made of metal, approximately 2 inches long by 1 1/8 inches wide, and attached to a 25-inch necklace. These tags are a prescribed part of your uniform and must be kept in your possession. When prescribed by directives, they are worn suspended from the neck under the clothing. When

not required to be worn, they should be regarded as part of your equipment and will be regularly inspected as such.

Identification tags must be worn while you are on active duty in the Navy under the following conditions:

1. In time of war
2. In time of national emergency
3. When engaged in flight operations
4. When traveling in aircraft
5. When reporting to an armed forces medical facility for treatment
6. When prescribed by the Chief of Naval Operations (CNO)
7. When prescribed by competent authority

Each tag is embossed with the following information:

First line: Last name, first name, and middle initial of the wearer; that is, DOE, John R. When the space provided for the first line is insufficient for the name as prescribed above, the first line will contain only the last name. The first name and middle initial will be on the second line.

Third line: Military personnel identification number (SSN), the letters *USN*, and the blood type and Rh factor.

Fifth line: The religious preference of the wearer.

GROOMING STANDARDS

Grooming standards are based on several elements—including neatness, cleanliness, safety, military image, and appearance in uniform. The standards are not intended to be overly restrictive or designed to isolate Navy men and women from society. The limits are reasonable; they ensure that personal appearance contributes to a favorable military image, yet they allow a degree of individuality. The seeming difference between the policy on grooming for male and female members is simply a recognition that there is a difference between the sexes—mustaches and sideburns for men, longer hair and cosmetics for women.

GROOMING STANDARDS FOR MEN

Hair will be neat and clean and present a groomed appearance. Hair above the ears and around the neck will be tapered from the lower hairline upward at least

3/4 inch and outward to greater than 3/4 inch to blend with the hairstyle. Hair on the back of the neck may not touch the collar. Hair will be no longer than 4 inches and groomed so that it does not touch the ears or collar, extend below the eyebrows when headgear is removed, or interfere with proper wearing of the headgear. The primary consideration remains a neatly groomed appearance for the hairstyle and the type of hair that the individual has.

Sideburns are permitted, but they are to be of even width (not flared), end with a clean-shaven horizontal line, and cannot extend below the earlobes.

In most instances, mustaches also are permitted, but must be kept neatly trimmed so that they don't appear ragged. No eccentricities, such as long, drooping mustaches, are permitted.

Such articles as pencils, pens, watch chains/fobs, pins, jewelry, handkerchiefs, combs, cigars, cigarettes, or pipes must not be worn or carried exposed upon the uniform. Wristwatches, bracelets, and inconspicuous rings (one ring per hand), but no oddities of dress, such as earrings, are permitted. While in uniform, men may wear one necklace or choker, but it must not be visible.

Navy personnel assigned to Marine Corps units, when wearing Marine Corps uniforms, shall abide by the grooming standards established for Marines; otherwise, when wearing Navy uniforms (including fatigues), they must abide by Navy regulations.

GROOMING STANDARDS FOR WOMEN

Hair must be neatly arranged and styled to present a feminine appearance but may not fall below the lower edge of the uniform collar. No hair is to show under the front brim of the hat. The only ornaments permitted in the hair are bobby pins (inconspicuously arranged) and barrettes (two maximum) of a color that matches the hair.

Fingernails must not exceed 1/4 inch measured from the tip of the finger. Nail polish must be a soft shade, complementary to the skin tone.

Cosmetics should be of conservative color and applied sparingly. No eccentricities or faddishness of dress, jewelry, or grooming is permitted. No pencils, pens, pins, handkerchiefs, or jewelry may be worn or exposed on the uniform. Earrings must be the 6mm-ball (approximately 1/4 inch) type with a brushed matte finish; either the screw-on or post type may be worn. E-6 and below must wear silver earrings; CPOs and officers must wear gold. Small single pearl earrings are

authorized for dinner or formal dress uniforms. While in uniform, women may wear one necklace or choker, but it must not be visible.

The wearing of the maternity uniform is mandatory for all pregnant women in the Navy when a uniform is prescribed and regular uniforms no longer fit.

SUMMARY

Look at that group of sailors; don't they look sharp? Doesn't that sound better than, What a bunch of sloppy looking sailors! Never forget that when you put on your uniform, whether it be a pair of dungarees or your best dress canvas (nautical term for dress uniform), you are representing every member of the Navy, from the CNO to the newest seaman recruit. The uniform you were provided in basic training and the articles you buy to replace them are designed for long wear and easy maintenance. It doesn't take a lot of time to keep your uniform looking sharp. Little things like using a stencil to put your name on uniform items instead of doing it freehand, removing irish pennants (salty term for loose threads on uniform), and putting a coat of polish on your

shoes every day or two can make a world of difference. People will be watching you all the time—not only family and friends, your division officer, the chief at quarters, and the officer of the deck on the quarterdeck, but also the waiter in your favorite restaurant. The time you take at the barbershop getting a neat haircut will not only keep you looking sharp in the eyes of the civilian community and your shipmates, but will give you pride in yourself. Take pride in those earned stripes or later your crow (slang for PO rating badge). Make sure they are sewn on properly. Your appearance in uniform not only shows the pride you have in the Navy, but the pride you have in yourself. Wear your uniforms with pride and dignity; you'll not go wrong.

REFERENCES

Naval Orientation, NAVEDTRA 12966, Naval Education and Training Program Management Support Activity, Pensacola, Fla., 1991.

U.S. Navy Uniform Regulations, NAVPERS 15665G, Bureau of Naval Personnel, Washington, D.C., 1987.

CHAPTER 10

PROFESSIONAL DEVELOPMENT

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe the enlisted career structure.
2. State the advancement requirements for nonrated personnel.
3. State the requirements for advancement to petty officer paygrades.
4. Define the purpose of the Professional Development Board.
5. Identify career reenlistment objectives.
6. Recognize the difference between sea duty, shore duty, and neutral duty.
7. Recognize the contents of the Duty Preference Form.
8. Explain the purpose of the Enlisted Performance Evaluation System.
9. Identify the contents of the enlisted service record.
10. Identify the personnel authorized to sign official Navy documents.
11. Define the purpose of the ships' Maintenance and Material Management (3-M) Systems.
12. State the purpose and general provisions of the personnel qualification standards (PQS) system.
13. State the procedures for maintaining divisional logs and files.

I came into the Navy feeling I could spend a few years away from home, save some money, see different places, and maybe get some training or education that I could use later. I've had to change my attitude about several things since joining. I didn't realize there are so many different opportunities open to me. I guess I'm only limited to how far I can go by how much effort I'm willing to put forth.

— A letter home

As the preceding letter points out, many opportunities are available to you in the Navy. You have opportunities for advancement, education, and a rewarding career. Since the Navy is an all-volunteer organization, its success is influenced by the personal satisfaction of its personnel. The desire to serve and patriotism are two factors that contribute to job satisfaction. Other important benefits are, pay, leave, and career opportunities. In this chapter we will briefly discuss training, career incentive programs, and other aspects of Navy life. Each item discussed is part of your professional development.

This chapter is not designed to provide a detailed explanation of all the rights and benefits available, but to make you aware of some of them. Keep in mind that because of frequent changes to personnel policies by the Navy and Department of Defense, some of the information given here may have changed by the time you read this manual. You should check with your leading petty officer, division or department career counselor, or the command career counselor for the latest information about any Navy programs.

ENLISTED CAREER STRUCTURE

The objective of the enlisted advancement system is to provide qualified petty officers to operate the Navy's ships, squadrons, and shore stations. Advancements, in turn, provide the opportunity for the orderly progression of qualified enlisted personnel to higher levels of responsibility throughout their naval career. All the particulars concerned with the advancement system are contained in BUPERSINST 1430.16D.

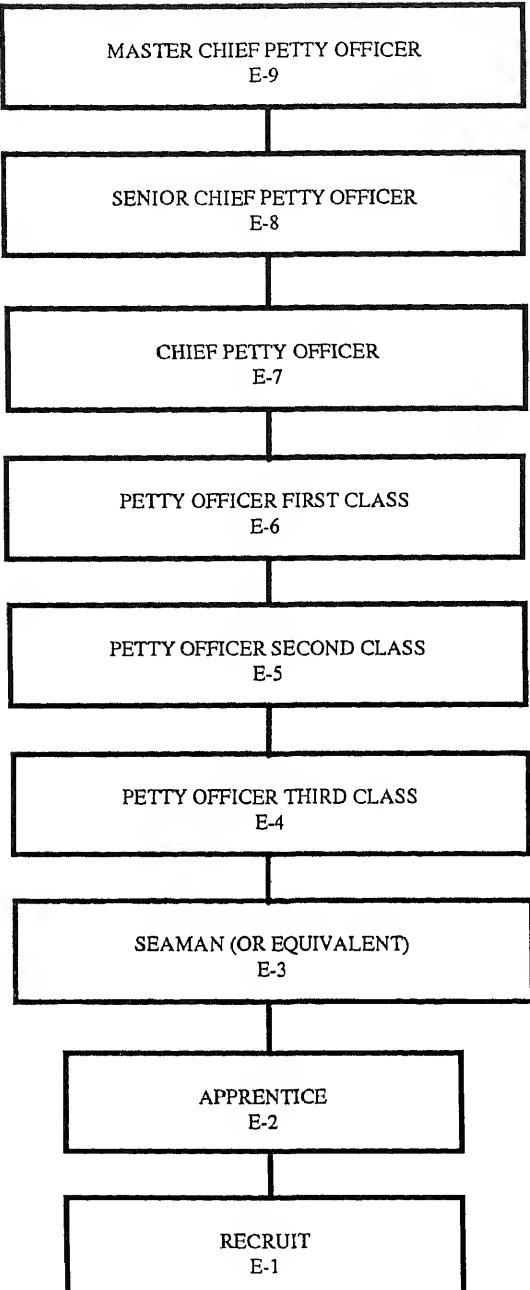


Figure 10-1.—Path of advancement.

The advancement system offers you increased pay, prestige, and privileges, as well as additional responsibilities and authority.

PATH OF ADVANCEMENT

The enlisted advancement structure is organized into paygrades. E-1 is the lowest enlisted paygrade and E-9 is the highest. The path of advancement from E-1 to E-9, along with the title of each paygrade, is shown in figure 10-1.

The lower three paygrades (E-1 to E-3) are referred to as apprenticeships and identified as one of the following:

1. Seaman apprenticeship (SR, SA, SN)
2. Fireman apprenticeship (FR, FA, FN)
3. Airman apprenticeship (AR, AA, AN)
4. Constructionman apprenticeship (CR, CA, CN)
5. Hospitalman apprenticeship (HR, HA, HN)
6. Dentalman apprenticeship (DR, DA, DN)

Petty officers (E-4 to E-9) and designated strikers belong to a rating. Ratings are divided into two categories—general ratings and service ratings.

General Ratings

A general rating is a broad occupational field (a group of jobs) that requires the same general qualifications and includes similar duties. Boatswain's Mate, Quartermaster, and Storekeeper are all examples of a general rating. Each rating has its own rating badge. These rating badges are shown in chapter 5 of this manual.

In some cases, two or more related general ratings will combine at the E-8 or E-9 level to form a new general rating. That is called compressing. For example, the two ratings Electrician's Mate and Interior Communications Electrician compress into Electrician's Mate at the E-9 level.

Service Ratings

Some general ratings are subdivided into service ratings to allow for special training or the assignment of personnel who have received special training.

Service ratings indicate specialties within a general rating; for example, Aviation Boatswain Mate is a general rating, but Aviation Boatswain Mate is divided into three service ratings: Catapults and Arresting Gear Equipment (ABE), Handling (ABH), and Fuels (ABF).

Service ratings are not identified by special rating badges, but they use the rating badge of the general rating to which they belong.

Service ratings may be established within a general rating at any paygrade and may extend to any other paygrade. For example, a general rating may have service ratings at E-4 and E-5 but not at E-6 through E-9.

Designated Strikers

A designated striker is a person in paygrade E-1, E-2, or E-3 who has been designated (appointed or specified) as technically qualified for a particular rating. In other words, a striker is professionally qualified in a rating.

Personnel in the general apprenticeships (E-1, E-2, and E-3) are identified as strikers for ratings for which they have demonstrated qualifications or for which they have received formal school training.

Commanding officers may designate personnel in their commands as strikers if certain qualifications are met. These qualifications are spelled out in the Navy's advancement manual. For more information on the requirements to be a striker in a rating, go to your career counselor or personnel office.

QUALIFICATIONS FOR ADVANCEMENT

Before you are advanced you must fulfill the qualifications for the paygrade you wish to be advanced to. You must also fulfill other eligibility requirements, and then you must be selected in order to be advanced.

How can you find out what is required of you for you to be considered qualified for the next paygrade? The Navy has created standards for every enlisted paygrade and rate. These standards are of two types: NAVAL STANDARDS and OCCUPATIONAL STANDARDS.

The naval standards and occupational standards are published in the *Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards*, NAVPERS 18068F. This publication should be available at your ESO or personnel office. Parts of this publication are reprinted in booklet form. There are two different types of booklets. One type lists the occupational standards for a particular rating. The other booklet lists the naval standards for all paygrades and the occupational standards for AN, CN, FN, and SN. These booklets are helpful when you are preparing for advancement and are available at your Educational Services Office (ESO).

Naval Standards

Naval standards are military requirements for a paygrade. They apply to all enlisted personnel in the Navy. Naval standards are skills and knowledges required for enlisted personnel to be able to perform their duty. They include military requirements and

essential qualities of professionalism and pride of service in support of your oath of enlistment. They also include basic skills and knowledges relating to the maintenance of good order and discipline as well as those which directly contribute to the mission of the Navy. To be qualified for a paygrade, you are responsible for knowing all the naval standards for that paygrade and ALL THE NAVAL STANDARDS FOR ALL LOWER PAYGRADES.

Occupational Standards

Occupational standards are a listing of the things you must be able to do to be considered professionally qualified for a rate. Occupational standards are the minimum occupational requirements of a particular rate and are separate and different from naval standards. In other words, to be an SN you would have to fulfill the occupational standards for SN as well as the naval standards for E-3.

If you wanted to look at the occupational standards for a particular rate, you would need to look at the occupational standards for that rate and all lower rates in the same rating as well as the occupational standards for the appropriate apprenticeship. For example, to see all the occupational standards for Machinist's Mate second class (MM2), you would have to look at the occupational standards for MM2, MM3, and FN.

ELIGIBILITY FOR ADVANCEMENT

In addition to all the naval and occupational standards for a rate, other requirements must be met for you to be eligible for advancement. Being eligible does not guarantee advancement, however. To be advanced, you must be selected for advancement.

Eligibility for Advancement to E-2 and E-3

The eligibility requirements for E-2 and E-3 are relatively simple. The requirements are to (1) have a certain amount of time in rate, (2) have an overall performance mark average of 3.0, and (3) be recommended by your commanding officer. Additionally, your command may require that you pass a written examination. An examination for E-2 would be prepared by your command. For E-3, either a locally prepared examination or an examination prepared by the Naval Education and Training Program Management Support Activity (NETPMSA) could be used.

Remember, these are *eligibility requirements*. Meeting these requirements means you are eligible for

advancement, BUT they do not mean you will be automatically advanced. Selection for advancement is discussed later in this chapter.

Eligibility for Advancement to Petty Officer

Advancement to petty officer has more eligibility requirements than advancement to E-2 or E-3. The eligibility requirements are to (1) have a certain amount of time in rate, (2) complete all personnel advancement requirements (PARs), (3) demonstrate knowledge of material in your mandatory rate training manual, (4) pass a military/leadership examination, and (5) be recommended by your commanding officer (CO).

TIME IN RATE.—You must fulfill time-in-rate requirements to be eligible for advancement to petty officer. That means you must have been in your present paygrade for a specific period of time to be eligible for the next paygrade.

PERSONNEL ADVANCEMENT REQUIREMENT.—The personnel advancement requirement (PAR) is a listing, by rate, of some of the requirements for advancement. Each rating has an individual PAR. You may get a copy of the PAR for the rating you are interested in from your ESO.

The PAR is designed as a checklist of some of the performance requirements you can use in preparing for advancement. The PAR has statements of advancement requirements followed by columns for dates and initials. These columns are used to show you have satisfied the requirements shown. Your supervisor will date and initial each requirement when you demonstrate you have met that requirement step. Each PAR has three sections:

Section I lists administrative requirements such as length in service, time in rate, and a checkoff entry to show you have passed the military/leadership examination.

Section II lists formal school and training requirements. Required Navy schools and rate training courses are listed in this section. Recommended training for improved performance may also be listed in this section.

Section III lists occupational and military ability. This section is based on the naval and occupational standards discussed earlier in this chapter.

The PAR must be signed off for you to be eligible

ALL the naval and occupational standards for your rate whether they are listed on the PAR or not.

TRAINING MANUAL INFORMATION.

Training manuals (TRAMANS) and their associated nonresident training courses (NRTCs) are prepared as self-study packages to assist you in developing the knowledge required for your rating. You may also use them when preparing to take an advancement examination. The information in some rate training manuals is considered mandatory. That means you must demonstrate knowledge of this information in order to be eligible for advancement.

The *Bibliography for Advancement Study*, NAVEDTRA 12052, lists publications that will help you in studying for advancement. The courses are listed in three categories: (1) naval standards, (2) apprenticeships, and (3) occupational fields. You must demonstrate a knowledge of the contents of those rate training manuals with an asterisk (*) beside their titles.

You may demonstrate this knowledge in one of two ways:

1. Pass the nonresident career course, which is based upon the rate training manual.
2. Pass a locally prepared and locally administrated test based upon the rate training manual.

Remember, you are responsible for the information in training manuals concerning the rating in which you wish to be advanced and the appropriate apprenticeship and general rate training manuals.

Earlier this chapter mentioned that the naval and occupational standards are reprinted in booklet form for your use. These same booklets also contain reprinted information from the *Bibliography for Advancement Study*, NAVEDTRA 12052. Therefore, these booklets are a handy source of information on the naval and occupational standards and the publications (mandatory and recommended) that concern you and your rating. The booklets are available from your ESO. Figure 10-2, shows an example of the booklets you would need. The rating you are interested in is on the front of the booklet.



Advancement Handbook For Apprenticeships

AN, CN, DN,
FN, HN, & SN



NAME/RATE

EFFECTIVE
1 JANUARY 1990
UNTIL SUPERSEDED



Advancement Handbook For Petty Officers

QUARTERMASTER
(QM)



NAME/RATE

EFFECTIVE
1 JANUARY 1991

Figure 10-2.—Samples of naval and occupational standards and bibliography booklets.

discussed in the previous pages, your division officer will recommend you for taking the military/leadership examination for PO3. This examination is a qualifying exam. Commanding officers use these exams as part of the overall qualifying process to determine your qualifications for advancement. When you pass your military/leadership exam, you demonstrate the *minimum* knowledge required of you by naval standards for the next higher paygrade. Military/leadership exams are administered and graded by your command. You should study this manual (*Basic Military Requirements*) and *Military Requirements for Petty Officer Third Class*. Remember, you should not only study for the paygrade of the exam you're going to take, but everything below that paygrade. You will be tested on all of these skill and knowledge requirements.

COMMANDING OFFICER'S RECOMMENDATION.—This eligibility requirement is, perhaps, the

most important of all. For you to be recommended for advancement by your commanding officer, your CO must be satisfied that you are fully qualified for advancement.

Your CO will rely, to a great extent, on the recommendations of the people in the chain of command in deciding whether or not you are fully qualified for advancement. Your supervisor will be constantly evaluating you to see if you can handle the duties and responsibilities of an advancement.

In addition, your CO can add requirements to the eligibility requirements shown in this book. These additional requirements should be met for you to receive your commanding officer's recommendation. Check with your supervisor or personnel office to see if your command has local requirements.

ADDITIONAL ELIGIBILITY REQUIREMENTS.—In addition to the eligibility requirements already mentioned, some ratings require a specific school and/or a performance test for advancement.

Requirements	E-1 to E-2	E-2 to E-3	E-3 to E-4	E-4 to E-5	E-5 to E-6	E-6 to E-7	E-7 to E-8	E-8 to E-9
Time in Rate	9 mos.	9 mos. as E-2	6 mos. as E-3	12 mos. as E-4	36 mos. as E-5	36 mos. as E-6	36 mos. as E-7	36 mos. as E-8
School	RTC (CO may advance up to 10% of company)	none	Class "A" for AME, BU, CE, CM, CTA, LN3 CTI, CTM, CTO, CTR, CTT, DT, EA, EO, EW, FTB, HM, IS, JO, MN, MT, MU, PR, SW, UT	Naval Justice School for	none	Navy school for AGC, MUC	Navy School for MUCS	none
PAR	none	none	PAR (Personnel Advancement Requirement) must be completed for advancement to E-4 to E-7		none	none	none	
Performance Test	none	none	Specified ratings must complete applicable performance test before taking Navywide advancement examination		none	none	none	
Nonresident Training Course and TRAMAN	none	Required for E-3 and all petty officer advancements unless waived because of completion of Navy school. Courses need not be completed but once; i.e., those who complete the 3 & 2 course for PO3 need not complete same course again for advancement to PO2.		Nonresident Training Courses and recommended reading. See NAVEDTRA 12052				
Military/ Leadership Examination	none	none	Must be passed before advancement exams for E-4, E-5, E-6, and E-7 candidates.		none	none	none	
Examinations	Locally prepared tests	NETPMSA exams or locally prepared test	Navywide advancement examinations required for advancement to E-4 through E-7		none	none	none	
Selection Board	none	none	none	none	none	Navywide CPO or SCPO/MCPO Selection Board		
Obligated Service Required	There is no set amount of obligated service required either to take the Navywide advancement examination or to accept advancement to paygrades E-1 through E-6			All CPO candidates must have two years remaining obligated service to accept appointment to a CPO paygrade				
Enlisted Performance Evaluation	As used by CO when approving advancements		Counts toward performance factor credit in advancement final multiple for all E-4 through E-9 candidates					
CO recommendation	All Navy advancements require the commanding officer's recommendation for advancement							
Authorization for advancement	Commanding Officer		Naval Education and Training Program Management Support Activity (NETPMSA) authorization required for advancement to E-4 through E-9 in addition to command approval					

Figure 10-3.—Requirements for advancement.

Figure 10-3 is a presentation of the general requirements for advancement. To get specific information on advancement to a particular rate, see your ESO or personnel office.

SELECTION FOR ADVANCEMENT

Once you meet all the eligibility requirements, you are considered eligible and qualified for advancement.

Then, to be advanced, you must be selected for advancement.

In all advancements, your commanding officer has the final word. In other words, you are always advanced by your commanding officer.

Selection for Advancement to E-2 or E-3

The selection for advancement to E-2 or E-3 is done by your commanding officer. The Navy has no limits on

the number of people who can be advanced to E-2 or E-3. Therefore, the commanding officer may select and advance people to E-2 and E-3 as soon as they have met all the eligibility requirements.

The commanding officer may use locally prepared tests or, in the case of advancement to E-3, a test prepared by NETPMSA to assist in the selection of people for advancement.

Selection for Advancement to Petty Officer

Selection for advancement to petty officer (up to E-6) is done on the basis of a final multiple among those who pass the Navywide advancement examination.

The number of persons who may be advanced is limited by the number of vacancies that exist in each rate and rating. Therefore, when the number of those who pass the Navywide advancement examinations is greater than the number of vacancies, a final multiple system is used to determine which personnel may be advanced to paygrades E-4, E-5, and E-6.

The final multiple score is based upon three things: merit rating, personnel testing, and experience. What this means is three separate categories are taken into consideration when a final multiple is computed.

Merit rating gives people who have shown they are outstanding performers an advantage in promotion. Merit rating is done by using an average of your performance marks for the last 3 years.

Personnel testing refers to the Navywide advancement examinations. These examinations are prepared and administrated by NETPMSA. Each test consists of 150 multiple-choice questions based upon the occupational standards for the rating. If you pass this examination but are not selected for advancement, you are considered to have PNA (passed, not advanced) status for the examination. Personnel testing includes your examination score in computing the final multiple score.

You receive credit for your experience in the final multiple score. Experience includes longevity—your total active federal military service (TAFMS) and time in rate (TIR). It also includes certain awards and PNA credits.

To sum it all up, the following factors are considered in your final multiple computation:

1. Performance mark average
2. Examination score

3. Length of service (TAFMS)

4. Service in paygrade (TIR)

5. Awards

6. PNA credits

Your final multiple score is computed by NETPMSA at the time your Navywide advancement examination is scored. All of the information needed to compute your final multiple as well as information that identifies you (name, social security number, unit identification, and so on) is on the answer sheet you fill out. BE SURE THE INFORMATION YOU PUT ON THIS ANSWER SHEET IS CORRECT. If you have any questions on how to fill in this information or the accuracy of the information, the proctors at the examination site will help you.

NETPMSA will send you a profile analysis form after your multiple is computed. This form shows you how well you did on the examination, your final multiple, and your status.

Remember, there may not be openings for all the people who pass the examination. For example, if 50 people passed the examination for a rate, but only 20 vacancies were allowed advancement to that rate, the following procedure would be used. The final multiple would be computed for all 50 of those people who passed the examination. The top 20 people would be selected for advancement, and the final multiple of the 20th person would be considered as the minimum final multiple. If you were one of the 50 people who passed the examination and if your final multiple was equal to or higher than the minimum final multiple, you would be considered as a selectee. That means you would be selected for advancement.

If you passed the examination, but your final multiple was not above the minimum final multiple, you would receive a PNA status for the examination. Your final multiple would be shown along with the minimum final multiple necessary for selection.

If you failed the examination, your multiple would not be computed. Your profile sheet would indicate a failed status and provide information on your exam score and the various sections of the examination.

If you have any questions regarding your profile analysis form, see your ESO or career counselor.

PREPARATION FOR ADVANCEMENT

Now that you have seen how the advancement system works, what can you do to improve your chances for advancement?

First, do your job to the best of your ability. Be "squared away" and put out that extra effort. Take every opportunity to accept responsibility.

Next, get an *Advancement Handbook* for the rating you are interested in. This book has a PAR sign-off sheet you will need to qualify for advancement. Start becoming qualified in the items shown in the handbook. Talk and work with a petty officer in that rating. Most petty officers are happy to have you show an interest in their rating and will do whatever they can to help you prepare for advancement.

Go to your ESO and get a copy of the occupational standards and bibliography booklet for the rating you are interested in. Look at the naval and occupational standards to see what is expected of you at each paygrade. Then try to become qualified in each of these standards.

The bibliography portions of these booklets will give you a list of books to study to prepare for advancement. Study these books and complete the NRTC_s. They will be of particular help to you in preparing for the Navywide advancement examination.

Finally, talk to your supervisor. Ask for information and guidance on advancement. You might also ask your ESO and career counselor for advice.

Taking these steps not only helps you prepare for advancement, but shows your superiors you are the type of person who deserves advancement.

PROFESSIONAL DEVELOPMENT BOARD

The primary purpose of the professional development board is to provide a fair and impartial opportunity for enlisted personnel to attain greater responsibility commensurate with their abilities and potential. The board is made up of permanent and supplemental members. Permanent members include the command master chief, command career counselor, personnel officer, and the educational services officer. Supplemental members may include the division officer, division chief, and the division career counselor. The board interviews individuals desiring advancement training, special programs, or programs requiring command endorsements. The board also provides advice to career personnel having difficulties being

selected for advancement or attaining command-required personnel qualification standards (PQS). All recommendations made by the board are forwarded to the commanding officer for approval.

CAREER REENLISTMENT OBJECTIVES

In the past, certain ratings were severely overmanned, allowing few promotion possibilities, or undermanned, causing extreme shortages in manning levels. The career reenlistment objectives (CREO) management system was created to control overmanned ratings, increase the number of personnel in ratings undermanned, and provide attractive career patterns for all personnel. All ratings have been placed in one of the three CREO categories, rating from extremely undermanned to excessively overmanned. Certain rates within the ratings may be classed in a different CREO category than the overall rating group. The CREO categories are laid out as follows:

- Category 1 Rating manned less than 97 percent.
- Category 2 Rating manned between 97 and 103 percent.
- Category 3 Rating manned in excess of 103 percent.

Personnel with a Category 3 rating may require permission from the Bureau of Naval Personnel (BUPERS) to reenlist or extend. BUPERS may require them to convert to a Category 1 rating. Your command or division career counselor should have a current CREO list.

TYPES OF DUTY

You often hear about three types of duty: sea duty, shore duty, and neutral duty. These three designations refer to duty for rotation purposes.

Everyone in the Navy has a sea/shore rotation. The amount of time you will spend on sea duty or shore duty depends on your rate, rating, and individual circumstances. Each rate and rating in the Navy has a designated sea/shore rotation cycle. You can find out what the current sea/shore rotation for your rate and rating is from your supervisor or career counselor.

If your sea/shore rotation were listed as 36/36, for example, that means that you would spend 36 months in sea duty billets and 36 months in shore duty billets. In other words, when you completed 36 months of sea duty, your next 36 months would be shore duty. After 36 months of shore duty, you would have 36 months of sea

duty. That would be your sea/shore rotation. What is sea duty, and what is shore duty?

Eight types of duty designations are used for sea/shore rotation. Each of these duty types is credited as sea, shore, or neutral duty for rotation purposes.

1. Shore Duty (sea/shore Code 1)—Duty performed in CONUS (the 48 contiguous states) land-based activities and long-term schooling programs. (Long-term is defined as 18 or more months; school assignments of less than 18 months are considered neutral duty.) Members are not required to be absent from the corporate limits of their duty stations in excess of 99 days per year.

2. Preferred Overseas Shore Duty (sea/shore Code 6)—Duty performed in overseas land-based activities that is credited as shore duty for rotational purposes as determined by BUPERS.

3. Sea Duty (sea/shore Code 2)—Duty performed in commissioned vessels or activities home-ported/home-based in CONUS that operate away from their home port/home base in excess of 150 days per year.

4. Overseas Shore Duty (sea/shore Code 3)—Duty performed in overseas land activities that is credited as sea duty for rotational purposes as determined by BUPERS.

5. Nonrotated Sea Duty (sea/shore Code 4)—Duty performed in commissioned vessels home-ported overseas (outside the contiguous 48 states) or in activities that operate away from their overseas home port/home base in excess of 150 days per year.

6. Neutral Duty (sea/shore Code 5)—Duty in activities normally designated as shore duty for rotation, but that require members to be absent 100-150 days per year from the corporate limits of their duty station while accomplishing their assigned tasks. School assignments of less than 18 months are included in this category.

7. Partial Sea Duty (sea/shore Code 7)—Duty performed in overseas, land-based activities credited as shore duty for rotational purposes, but credited as partial sea duty in accordance with established guidelines.

8. Double Sea Duty (sea/shore Code 8)—Duty performed in commissioned vessels or activities in an active status that operate away from their home port/home base in excess of 150 days a year credited as double sea credit because of the nature of the mission.

ENLISTED DETAILERS

Every rate and, in most cases, every paygrade has a senior enlisted person who matches personnel within a particular rate or specialty with the available billets Navywide.

These personnel are referred to as enlisted detailers. When detailers work to fill requisitions (vacant billets), several factors are involved. They must match you with a billet you are qualified for and within a certain time frame.

You can use several forms to keep your detailer informed of the type and kind of duty you desire. The most widely used is the Duty Preference Form. Commonly referred to as a 1306 (NAVPERS Form 1306/63), this form is used by all enlisted personnel to tell their detailer what type of duty they would like. The Navy has numerous types of duty, both at sea and ashore. The Enlisted Duty Preference Form contains all the information a detailer requires to ensure personnel meet all the requirements for each billet. The information contained in the 1306 ranges from how long an individual has been in the Navy to how much personal gear (household effects) will have to be moved during a transfer.

Each duty location (stateside or overseas) and duty type (ship, repair facility, and so forth) has a particular code assigned to assist the detailers in their assignment process. The form also has spaces allotted for the member to make personal comments that may help detailers in assigning a requested billet. All Navy personnel should update their Duty Preference Form at certain intervals throughout their Navy career. Your division or command career counselor should have these forms available and will be able to assist you in filling out your request.

ENLISTED PERFORMANCE EVALUATIONS

Enlisted performance evaluations are used to document an individual's qualifications, performance, conduct, and eligibility for increased responsibility.

The performance evaluation is the most significant personnel management tool in your service record. It is used primarily by the Bureau of Naval Personnel to make advancement-in-rate and assignment decisions. It is also used in determining eligibility for Good Conduct Medals, reenlistments, and the type of discharge you will get. Various selection boards use performance evaluations as the basis for selecting members for

advancement, continuation of service, appointment to commissioned status, assignment to special duties, and special educational programs. The importance of the performance evaluation cannot be overemphasized; it demands the attention of both the command and the individual.

DEVELOPMENT AND REVIEW

All members of the naval service should be given the opportunity to submit information they believe should be included in their evaluation to their reporting senior. Types of information you may submit include, but are not limited to, off-duty educational achievements, completed correspondence courses, community involvement, or other achievements the reporting senior may not be aware of. Also, you have the right to review your own evaluation before final disposition is made. You should take an active role in the development and review of your evaluation. The future of your career depends on it.

TRAITS TO BE EVALUATED

The reporting senior compares your performance against others of the same rate and rating as yourself. When you are not assigned duties of your rate or rating, comparison is made against others of the same paygrade who are performing similar duties. The reporting senior will make a concerted effort to evaluate you objectively in each trait. Some of the traits in which you may be evaluated are given below with a brief explanation of each one. Each trait is assigned a numerical value or designated as Not Observed. The numerical values and their meanings are as follows:

- 4.0/3.8—First rate
- 3.6/3.4—Above expectations
- 3.2/3.0—Satisfactory
- 2.8/2.6—Below expectations
- 2.0/1.0—Unsatisfactory

Military Knowledge/Performance

In the Military Knowledge/Performance trait, you are rated on your knowledge and performance of your job-related duties, your application of technical and professional skills, your problem-solving abilities, and your ability to accept instructions and directions.

Initiative

The Initiative trait block contains an evaluation of your ability to act appropriately, independently, and without specific direction, while exercising sound judgment. It also contains an evaluation of your ability to set goals and performance standards for yourself and for others.

Reliability

The Reliability trait block contains an assessment of the extent to which you can be depended upon to perform assigned tasks successfully and your ability to complete assigned tasks in a timely manner. It also contains an evaluation of the extent to which you are at your assigned place of duty when needed, the degree of support you show for command and Navy policies and initiatives, and your level of personal integrity.

Military Bearing

In the Military Bearing trait, you are evaluated on your personal appearance, including physical fitness; wearing of your uniform; and, when appropriate, neatness of your civilian clothing. You are also graded on your knowledge and practice of military courtesies and the way you present yourself as a member of the Navy.

Personal Behavior

In the Personal Behavior trait, you are assessed on your personal behavior, conduct both on and off duty, and demeanor during the reporting period.

Human Relations, Including Equal Opportunity

The Human Relations trait block contains an evaluation of your ability to work successfully with subordinates, peers, and superiors. It also contains an evaluation of your contributions to command morale and your support of the Navy's Command Managed Equal Opportunity program.

Speaking Ability

In the Speaking Ability trait, you are evaluated on your ability to effectively use the English language to express yourself orally. It is a measure of your correct use of the language, your clarity of speech, and your organization and presentation of thoughts. For

personnel in paygrades E-1 through E-3, a grade in this trait is not required unless abilities are clearly demonstrated.

Writing Ability

The Writing Ability trait block contains an evaluation of your ability to effectively use the English language in written communications. It also contains an evaluation of the quality of your written work, the presentation of your thoughts, and your correct usage of English grammar. For personnel in paygrades E-1 through E-3, a grade in this trait is not required unless abilities are clearly demonstrated.

Directing

In the Directing trait you are evaluated on your skill at leading others to the successful achievement of common goals. Your ability to delegate, to gain commitment from others, and to challenge and inspire subordinates while maintaining positive and realistic expectations are all taken into account. For personnel in paygrades E-1 through E-3, a grade in this trait is not required unless abilities are clearly demonstrated.

Counseling

The Counseling trait block contains an assessment of your skill at counseling your people. Your ability to confront, where warranted, and praise, where justified, is evaluated along with your ability to assist your subordinates in resolving professional and personal problems. Your support of the Navy's retention programs is also evaluated. For personnel in paygrades E-1 through E-3, a grade in this trait is not required unless abilities are clearly demonstrated.

Overall Evaluation

Your overall evaluation mark is an assessment of your overall value to the Navy. This mark is a judgment by the reporting senior. It should be consistent with the marks assigned; however, it need not be in direct agreement with the graded column that has received the majority of the marks assigned.

SUBMISSION AND DISPOSITION

Periodic enlisted performance evaluations for E-3 and below are to be submitted on a yearly basis or when

You *must* sign your evaluation. Your signature on your evaluation *does not* indicate agreement with the evaluation; it indicates you have seen the evaluation and your rights have been explained. Your signature also indicates you have verified the identification data in the evaluation.

Once signed, the evaluation is sent to BUPERS. A copy of your evaluation is placed in your field service record, a copy is retained by the reporting activity, and you are given a copy.

ENLISTED SERVICE RECORDS

The Enlisted Service Record is the official history of a person's Navy career. The information contained in the service record starts when you apply for enlistment and is added to throughout your naval service. The record is the property of the Navy and must be safeguarded against loss and against access by unauthorized persons. Service record entries are made only by those personnel who are given such authority by the commanding officer.

The Enlisted Service Record, NAVPERS 1070/600, is a flat-type folder containing various forms concerning your enlisted service. The right-hand side has certain forms in a specific order. Your service record will contain only the forms that apply to you. There are 15 different forms altogether. The order in which these forms are filed has led to their being referred to as pages. For example, your enlistment contract is the first, or bottommost, form. It is referred to as page 1. Some of the forms found in all service records will be discussed later.

Other papers required for safekeeping or record purposes are filed on the left-hand side of the folder. A separator, entitled Career Performance Data, NAVPERS 1070/617, divides the left-hand side. Beneath this separator are filed all your performance evaluations, commendations, and awards correspondence. If you have a previous enlistment, a certified copy of the Enlisted Performance Record, page 9, from the previous enlistment and copies of any Certificates of Release or Discharge from Active Duty, DD Forms 214, are also filed beneath the separator. All other papers are filed above the separator in chronological order, the latest date on top.

Only five forms from the enlisted service record will be discussed in this chapter. The remaining forms are more or less of an administrative nature. Some pages require several sheets during an enlistment. For

77. LOCATION OF WILL OR OTHER VALUABLE PAPERS

78. REMARKS

Is beneficiary designation of S.C.L.L.

NOTE: THIS FORM DOES NOT DESIGNATE OR CHANGE BE

79. SIGNATURE OF DESIGNATOR

I have reviewed the data entered on this form and certify that it is correct.
Execute a new NAVPERS 1070/602 if data is not correct.

DATE	SIGNATURE OF DESIGNATOR

DEPENDENCY APPLICATION/RECORD OF EMERGENCY DATA

1. UNIT #	2. SHIP OR STATION	3. [REDACTED]			
5. NAME OF SPOUSE	6. DATE OF BIRTH OF SPOUSE	7. RELATIONSHIP			
8. PLACE OF MARRIAGE (CITY & STATE OR COUNTRY)	9. DATE MARRIED	10. CITIZENSHIP OF SPOUSE			
11. ADDRESS OF SPOUSE	12. DEP				
13. NAME OF CHILD OR DEPENDENT	14. DATE OF BIRTH	15. RELATIONSHIP			
16. ADDRESS (INCLUDE NAME OF CAPTIONED IF OTHER THAN CLAIMANT)	17. DEP				
18. NAME OF CHILD OR DEPENDENT	19. DATE OF BIRTH	20. RELATIONSHIP			
21. ADDRESS (INCLUDE NAME OF CAPTIONED IF OTHER THAN CLAIMANT)	22. DEP				
23. NAME OF CHILD OR DEPENDENT	24. DATE OF BIRTH	25. RELATIONSHIP			
26. ADDRESS (INCLUDE NAME OF CAPTIONED IF OTHER THAN CLAIMANT)	27. DEP				
28. NAME OF CHILD OR DEPENDENT	29. DATE OF BIRTH	30. RELATIONSHIP			
31. ADDRESS (INCLUDE NAME OF CAPTIONED IF OTHER THAN CLAIMANT)	32. DEP				
33. NAME OF FATHER					
34. ADDRESS OF FATHER (SEE SPECIAL INSTRUCTIONS BEFORE COMPLETING BLOCK 36)	35. DEP				
36. NAME OF MOTHER					
37. ADDRESS OF MOTHER (SEE SPECIAL INSTRUCTIONS BEFORE COMPLETING BLOCK 36)	38. DEP				
39. WAS YOU PREVIOUSLY MARRIED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	40. PRIOR MARRIAGE DISMISSED BY <input type="checkbox"/> DEATH <input type="checkbox"/> ANNULMENT <input type="checkbox"/> DIVORCE	41. DATE	42. PLACE (CITY & STATE OR COUNTRY)		
43. WAS SPOUSE PREVIOUSLY MARRIED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	44. PRIOR MARRIAGE DISMISSED BY <input type="checkbox"/> DEATH <input type="checkbox"/> ANNULMENT <input type="checkbox"/> DIVORCE	45. DATE	46. PLACE (CITY & STATE OR COUNTRY)		
47. OTHER	48. ADDRESS	49. RELATIONSHIP			
50. NEXT OF KIN OF SPOUSE (NOT MARRIED, WIFE OR SISTER OF SPOUSE)	51. ADDRESS	52. RELATIONSHIP			
53. BENEFICIARY(IES) FOR UNPAID PAY AND ALLOWANCES	54. ADDRESS	55. RELATIONSHIP	56. %		
57. PERSON TO RECEIVE ALLOTMENT IF IN A MISSING STATUS SUBJECT TO CASUALTY DETERMINATION	58. ADDRESS		59. %		
60. BENEFICIARY(IES) FOR GRATUITY PAY (NO SPOUSE OR CHILD SURVIVORS)	61. ADDRESS	62. RELATIONSHIP	63. %		
64. LIVE INSURANCE DATA FRAME OF CDR (DO NOT INCLUDE MIL)	65. ADDRESS	66. POLICY NUMBER			
67. RELATION	68. [REDACTED]	69. [REDACTED]	70. BANK / DATE	71. PAGE	72. OF PAGES
73. NAME OF DESIGNATOR (LAST, FIRST, MIDDLE)	74. DEP	75. DEP	76. DEP	77. DEP	78. DEP

Figure 10-4.—Dependency Application/Record of Emergency Data (Page 2), NAVPERS 1070/602.

RECORD OF EMERGENCY DATA

The Dependency Application/Record of Emergency Data, NAVPERS 1070/602, page 2, is a multipurpose form and is used for both officer and enlisted personnel.

Part I of this form serves an application for dependency allowances. This part must be completed by

means of an optical character recognition (OCR) typewriter. Therefore, it is completed at the recruit training command, or first duty station, for all personnel with dependents.

Part II of this form (fig. 10-4) provides an immediately accessible, up-to-date record of emergency data for casualty reporting and

ENLISTED CLASSIFICATION RECORD
NAVPERS 1070/603 (Rev. 7-80) S/N 0106-LF-010-8041

[31]

PRIVACY ACT STATEMENT: Authority to request this information is contained in 5 USC 301, Departmental Regulations. The principal purpose of the information is to identify your personal skills and capabilities in order to assign you training duties commensurate thereto. It will therefore be used initially to assist in ascertaining your suitability for particular types of formal training and duty assignment. Additionally, it may be used throughout your naval service by officials and employees of the Department

of the Navy in the performance of their official duties related to the management, supervision, and administration of Navy military personnel and the operation of personnel affairs and functions. Completion of the form is mandatory. Failure to provide required information may result in denial of your requests for training or duty assignments which you might desire later in your naval service, or in other administrative action being taken.

PREPARING ACTIVITY												CO. NO.	DATE PREPARED				
TEST FORM ID	DATE ADMIN.	AFQT	ASVAB 8 9 10 ASVAB 3 4 7	GS	AR	WK	PC	NO	GS	AS	MK	MC	EI	VE			
MOST SIGNIFICANT EDUCATION		DATES		YEARS EDUCATION		DEGREE		ASVAB ADMINISTERED BY									
NAME OF COLLEGE OR UNIVERSITY												SPECIAL TEST SCORES					
												NAME	FORM	DATE	SCORE		
MAJOR/MINOR (Include specializations)																	
SIGNIFICANT COURSES												SPECIAL STUDIES	ALG.	GEOM.	TRIG.	PHYS.	TYPING
												HIGH SCHOOL					WPM
												COLLEGE					WPM
SPECIALIZED TRAINING (Vocational, trade, business, military)																	
MAIN CIVILIAN OCCUPATION (Title from D.O.T.)												YRS. SERVICE	D.O.T. CODE				
DUTIES, SKILLS, MACHINES																	
REMARKS																	
RIGHT EYE		LEFT EYE		COLOR PERCEPTION		HEARING		NORM.	DEF.	QUALIFIED SWIMMER CLASS							
UNCORR.	CORR.	UNCORR.	CORR.														
RATING RECOMMENDATIONS:												I understand what has been recorded hereon and the information is correct. I also accept and volunteer for the (apprenticeships) ratings and I volunteer for the following type(s) of duty:					
SCOL	1ST	2ND	3RD	4TH	5TH												
OJT																	
INTERVIEWER'S SIGNATURE						INTERVIEWEE'S SIGNATURE											
NAME (Last, First, Middle)						SSN	RATE	CLASS									

Figure 10-5.—Enlisted Classification Record (Page 3), NAVPERS 1070/603.

notification of the next of kin. Therefore, you should update this part of the form whenever any of your dependents have a change of address or change of status.

ENLISTED CLASSIFICATION RECORD

The Enlisted Classification Record, NAVPERS 1070/603, is the page 3 of the service record (fig. 10-5).

Figure 10-6.—Navy Occupation/Training and Awards History (Page 4), NAVPERS 1070/604.

Page 3 is prepared by the classification section of the Navy recruiting district, recruit training command, or other major personnel processing command. This form is a permanent part of your enlisted service record and accompanies you throughout your active duty or inactive duty career. A duplicate copy of this form is forwarded to the Bureau of Naval Personnel, in

Washington, D.C., for inclusion in its (official) copy of your service record.

If you reenlist, transfer to the Fleet Reserve, or enlist in the Naval Reserve at your place of discharge, the enlisted classification record is removed from your closed (old) service record and inserted in your new record.

If you do not immediately reenlist, the original page 3 is removed from your old service record and stapled to the discharge certificate. The enlisted classification record should be retained and, in the event of later reenlistment, presented with the discharge certificate to the recruiter.

Page 3 has a wealth of information that is of considerable value to you and the Navy. The type of information includes your basic test battery scores, civilian education, and training received before enlistment, as well as the type of duty you desired at the time you were classified.

NAVY OCCUPATION/TRAINING AND AWARDS HISTORY

Page 4, Navy Occupation/Training and Awards History, NAVPERS 1070/604, is another service record form of considerable interest to you and the Navy (fig. 10-6). Page 4 provides a complete chronological record of the following types of information: Navy enlisted classification (NEC) codes; designators assigned, changed, or revoked; Navy service schools attended; Navy training courses, performance tests, and personnel qualification standards completed; military/leadership examinations completed; maintenance and/or technical qualifications attained; advancements, reductions, changes in rate or rating; general educational development (GED) tests and off-duty courses completed; decorations received; and good conduct, unit, marksmanship, campaign/service, and other awards received.

When you are discharged and not immediately reenlisted, this form is given to you. Upon application for enlistment/reenlistment, this page should be presented to the recruiter along with the discharge certificate.

ENLISTED PERFORMANCE RECORD

Page 9 of the Enlisted Service Record is the Enlisted Performance Record, NAVPERS 1070/609. Page 9 is used to record the evaluation of performance of duty of both Regular and Reserve enlisted personnel on active duty. The personnel office refers to this page to determine such things as your eligibility for reenlistment or suitability for assignment to special duty.

ADMINISTRATIVE REMARKS FORM

The Administrative Remarks Form, NAVPERS 1070/613, when complete, becomes page 13 of your service record. Page 13 contains miscellaneous entries of information not recorded elsewhere or of detailed information that may be required in the clarification of entries on other pages of the service record. The original is retained in your service record, and a copy is forwarded to BUPERS.

SIGNATURE AUTHORITY

The commanding officer, officer in charge, or the person acting in either position is responsible for signing all command documents. Certain documents require the commanding officer's personal signature. These include documents that establish policy; deal with certain aspects of military justice; or are required by law, such as ships' deck logs. The commanding officer may delegate signature authority to both military and civilian subordinates. This authority is normally limited to their specific area of responsibility. This responsibility may range from the work center supervisor signing a PQS requirement, to the division chief or officer signing off advancement requirements. Command personnel authorized to sign command correspondence are normally listed in a unit organization manual or instruction. An authorizing signature above the words "By direction" indicates the commanding officer has authorized that person to sign the document.

3-M SYSTEMS

Preventive maintenance of equipment is accomplished using procedures and schedules established by the Navy and incorporated in the ships' Maintenance and Material Management Systems, better known as the 3-M Systems. The objectives of the 3-M Systems are to (1) maintain equipment at maximum operating efficiency, reduce equipment downtime, and reduce the cost of maintenance in both money and man-hours; and (2) provide data concerning the expenditures of spare parts, failure rates, man-hours expended, and other information directly related to maintenance. More simply, the objective of the 3-M Systems is to improve the material readiness of the fleet. The main feature of the 3-M Systems with which you will be concerned is the planned maintenance system (PMS).

The PMS is designed to simplify maintenance procedures by defining the maintenance required, scheduling its performance, describing the tools and

methods to be used, and providing for the detection and prevention of impending casualties. The PMS also provides a good foundation for training in equipment operation and maintenance.

The PMS gives your department head the means to manage, schedule, and control the maintenance of assigned equipment. Components of the PMS are a PMS manual; cycle, quarterly, and weekly maintenance schedules; and maintenance requirements cards.

As you become more familiar with your shipboard duties and are assigned the responsibility for equipment maintenance, the PMS will play a big part in your daily activities on the job.

PERSONNEL QUALIFICATION STANDARDS

A personnel qualification standard (PQS) is a written list of knowledges and skills you must have to qualify for a specific watch station, maintain a specific equipment or system, or perform as a team member within an assigned unit. The PQS program is a method for qualifying you to perform your assigned duties.

Most standards are divided into three sections: Fundamentals, Systems, and Watch Stations. The Fundamentals section contains the facts, principles, and fundamentals concerning the subject for which you are qualifying. The Systems section deals with the major working parts of the installation, organization, or equipment the PQS is concerned with. The Watch Stations section defines the actual duties, assignments, and responsibilities you must perform to obtain your qualification. The Watch Stations section also contains spaces for your supervisor's or qualifying officer's signature once you have proved your abilities.

If you have any questions regarding PQS in general or a specific PQS, see your supervisor or training petty officer.

DIVISIONAL LOGS AND FILES

The logs and files division personnel are required to maintain are too numerous to list here. They may range from a QM3 keeping a list of all required chart corrections, an ENFN maintaining a fuel log for the ship's boats, or an ET2 listing all field changes for the surface search radar. Each division of every ship, squadron, or facility has a certain number of logs and files that must be kept up-to-date so that the command can operate efficiently. An example would be an F-14 Tomcat with engines that have logged 1,000 flying

hours although its engines should have been replaced after 750 hours. Another example would be the USS Missouri (BB-63) firing 400 rounds of 16" projectiles in practice but deploying with only 20 rounds on board. Both of these situations would be avoided if the division concerned kept up-to-date files.

Think about going on a lookout watch at midnight in December aboard a ship under way in the North Atlantic. You arrive for watch at the prescribed time to find no foul weather gear available. The person responsible for maintaining an inventory of special gear didn't do the inventory because he or she didn't think it was that important last June in sunny Florida.

You must remember, that besides your division, the entire crew and even the ship itself may depend on how well you maintain your assigned logs and files.

SUMMARY

The potential for professional growth and advancement in the Navy is almost limitless. Our system is designed so that Navy members can advance through the rating structure as long as they are willing to put forth the necessary effort. However, certain requirements and standards must be met and maintained. These standards are not restricted to only the professional side of a particular rate. They include a wide variety of military and leadership standards that range from the completion of basic damage control PQS to the preparation of performance evaluations for junior personnel.

Having a successful Navy career involves more than being a good technician. You must also be a good administrator, motivator, and teacher. Choose your role models carefully. Once you have adopted successful traits into your daily routine, your career will become like so many before you—one of enjoyment and satisfaction.

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CHAPTER 11

DRILL

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Recognize positions within a formation.
2. Identify the different position and facing commands.
3. Describe the correct way to respond to commands.

This chapter describes the basic positions and facing movements used in all military drills.

Understanding and correctly following the basic drill positions and facing movements are a necessary part of our military life. Drills teach discipline and instill habits of precision and automatic response to orders.

POSITIONS WITHIN A FORMATION

Many military functions, such as morning quarters and personnel inspections, require that you assemble in formation. The terms used to identify these formations may vary at different commands. For example, the term *squad* or *platoon* at one command may be a *detail*, *division*, or *class* at another. In this chapter, the term *squad* is used to represent a basic formation. Remember that the members of any formation must respond in

unison (together) to the commands given. By studying the following terms and referring to the diagram in figure 11-1, you can easily learn the basic positions within a formation:

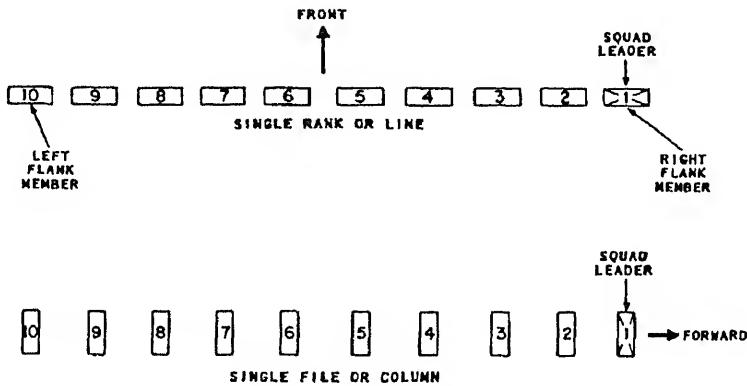
ELEMENT: An individual, squad, section, platoon, company, or some other unit that is part of a larger unit.

FORMATION: An arrangement of elements in line, in column, or in any other prescribed manner.

RANK or LINE: A formation of elements or persons abreast of each other or side by side.

FILE or COLUMN: A formation of elements or persons placed one behind the other.

FLANK: The extreme right or left of a unit, either in line or in column. The element on the extreme right



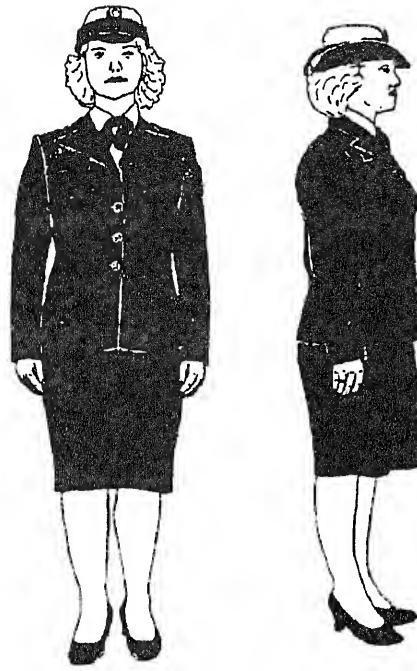


Figure 11-2.—Attention.

or left of the rank. A direction at a right angle to the direction an element or a formation is facing.

DISTANCE: A space of 40 inches between the chest of one person and the back of the person ahead within ranks.

INTERVAL: The space between individuals from shoulder to shoulder, normally one arm's length.

GUIDE: The individual on whom a formation or element regulates its alignment. The guide is usually positioned to the right.

PACE: The length of a full step (30 inches for men and 24 inches for women).

STEP: The distance from heel to heel between the feet of a marching person. The half step and back step are 15 inches. The right and left steps are 12 inches.

POSITION AND FACING COMMANDS

The two types of commands are the preparatory command, such as Right, which indicates the type of movement to be made, and the command of execution, such as FACE, which causes the desired movement to be made. For clarity within this chapter, we underscore and capitalize the first letter of preparatory commands (Right) and capitalize each letter of commands of



Figure 11-3.—Parade Rest.

execution (FACE). When both types of commands are combined, such as FALL IN, AT EASE, and REST, we capitalize them as we do for commands of execution.

The command AS YOU WERE cancels a command or an order started but not completed. On this command, you resume your former position.

POSITIONS

Assume the following positions only when you are at a halt. One person or an entire formation may execute them.

ATTENTION: The position of attention is the basic military position. It indicates you are alert and ready for instruction. In this position, stand with your heels together, feet forming an angle of 45 degrees, head and body erect, hips and shoulders level, and chest lifted. As shown in figure 11-2, allow your arms to hang naturally—thumbs along skirt or trouser seams and fingers joined and in their natural curl. Keep your legs straight, but not stiff at the knees. Direct your head and eyes to the front. Keep your mouth closed, and pull your chin in slightly. When called to attention, bring the heel of your left foot to the heel of your right foot.

PARADE REST: The commands Parade, REST are given only when the formation is at attention; the movement is executed in one count. On the command REST, move your left foot smartly 12 inches to the left. At the same time, join your hands behind your back with

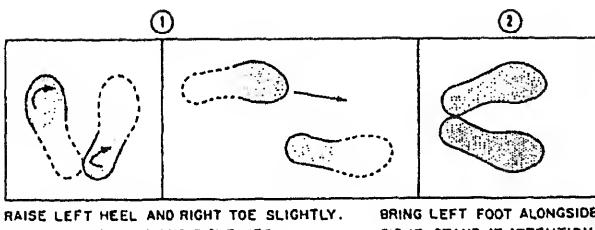


Figure 11-4.—Right Face.

your right hand inside the left, holding the left thumb. Keep your fingers straight while resting your hands in the small of your back (fig. 11-3). Stand with both legs straight allowing your weight to rest equally on each foot. Do not move and do not talk. Direct your head and eyes as you would in the position of attention.

AT EASE: On the command AT EASE, you can relax and shift about, but keep your right foot in place. Do not talk. This command may also be given when you are not in ranks, as in a classroom. You must not talk, but you may remain relaxed.

REST: On the command REST, follow the same movement restrictions as you would when at ease, but you may talk.

FALL OUT: (This command is not a dismissal order.) Upon the command FALL OUT, leave your position in ranks but remain nearby. On the command FALL IN, resume your place in ranks, and come to attention.

To bring a formation to attention again when it is in any one of the four positions of rest, the person issuing commands gives a preparatory command (such as Company) before the command ATTENTION. If at rest or at ease, come to the position of parade rest on the preparatory command.

FACINGS

Facings are movements that can be made either to the right or left, with the exceptions of about face. While facing, your arms should remain at the position of attention. The following commands describe only the movement to the right. To perform a movement to the left, simply substitute "left" for "right" and "right" for "left."

RIGHT FACE: Right face (fig. 11-4) is a two-count movement started on the commands Right, FACE. On the command FACE: (1) Raise your left heel and right toe slightly and turn 90 degrees to the right. Keep your

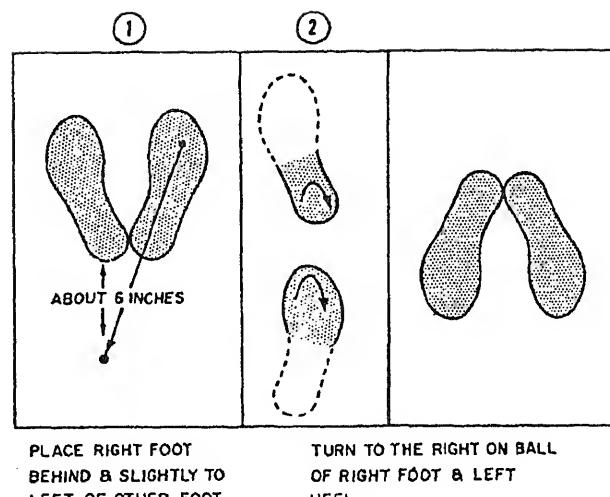


Figure 11-5.—About Face.

left leg straight but not stiff. (2) Bring your left heel smartly alongside the right heel and stand at attention.

EYES RIGHT: When given the commands Eyes, RIGHT, smartly turn your head 45 degrees to the right on the command RIGHT. The commands to turn your head back to the position of attention are Ready, FRONT. On the command FRONT, snap your head to the front.

ABOUT FACE: About face is a two-count movement performed on the commands About, FACE. On the command About, shift your weight to your left leg without noticeable movement. On the command FACE, (1) place your right toe about 6 inches behind and slightly to the left of your left heel (fig. 11-5); (2) on the ball of the right foot and the heel of the left foot, turn smartly to the right until you are facing the rear. Your feet will be in the position of attention when the turn is completed if you place your right toe properly behind your left heel.

FALLING INTO FORMATION

Up to this point, we have described movements that can be made by one person or by a group. In a sharp military formation, each member must correctly respond to commands as a team. Always listen carefully to the person in charge since formation movements are usually made up of both preparatory and execution commands. In the following movements, you must pay special attention to the duties of the left and right flank members since their response to a command is slightly different from the other members in formation.

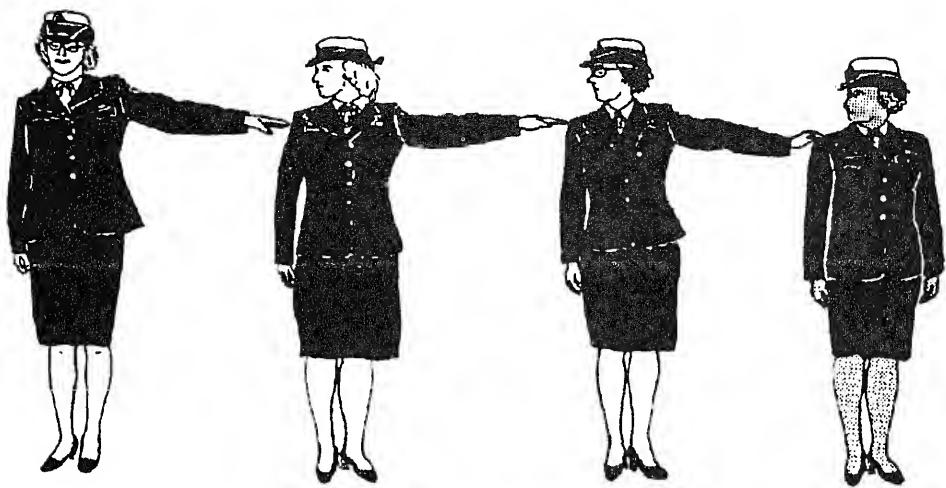


Figure 11-6.—Normal interval.

FALL IN: On the command FALL IN, the squad forms in line on the left of the right flank member (squad leader). Each member of the squad, except the left flank member, raises the left arm shoulder high in line with the body. Fingers are straight and touching each other, palm down. Each member, except the right flank member, turns the head and looks to the right. To obtain a normal interval, as shown in figure 11-6, move in line so that your right shoulder touches the fingertips of the person to your right. As soon as you are in line with the person to your right and the person on your left has obtained normal interval, return smartly and quickly to the position of attention.

Close interval (fig. 11-7) is the horizontal distance between the shoulder and elbow when the left hand is placed on the left hip. The command At Close Interval requires the same movements as for normal interval. The only exception is that each member places the left hand on the beltline above the left hip with the elbow in line with the body. The heel of the hand rests on the hip with fingers straight, touching each other, and pointing down. The left flank member makes the adjustment without moving the arms.

TO ALIGN THE SQUAD: On the commands Dress Right, DRESS (normal interval) or At Close Interval Dress Right, DRESS (close interval), members of the squad align themselves with each other.

On the command DRESS, all members, except the right flank member, smartly turn their heads, look, and align themselves to the right. At the same time, all members, except the left flank member, smartly raise

their left arm shoulder high (normal interval) or place their left hand on their hip (close interval). The right flank member stands fast and looks to the front. Using the right flank member as a guide and taking short steps, the other members align themselves and obtain the proper interval. Whether commanded to dress to the right or to the left, use only the left arm to obtain the interval, and hold that position until the next command is given.

When the alignment is correct, the commands Ready, FRONT are given. On FRONT, heads snap to the front and arms drop to the side.

TO COVER OFF: This command is given when the formation is in column or in two or more ranks. On the command COVER, the forward member or forward rank stands fast. You will then move, left or right, to position yourself directly behind the person in front of you while maintaining a 40-inch distance.

FROM NORMAL TO CLOSE INTERVAL: The commands Close, MARCH tell members to move from normal interval to close interval while in line. On MARCH, all members, except the right flank member, pivot to the right on the ball of the right foot and step off on the left foot (one count). They march forward until they obtain an approximate close interval, halt, and face to the left. They then form at close interval, as already described. All members lower their arms when the member on their left has obtained the proper interval.

FROM CLOSE TO NORMAL INTERVAL: The commands Extend, MARCH tell members to change from close interval to normal interval while in line. On

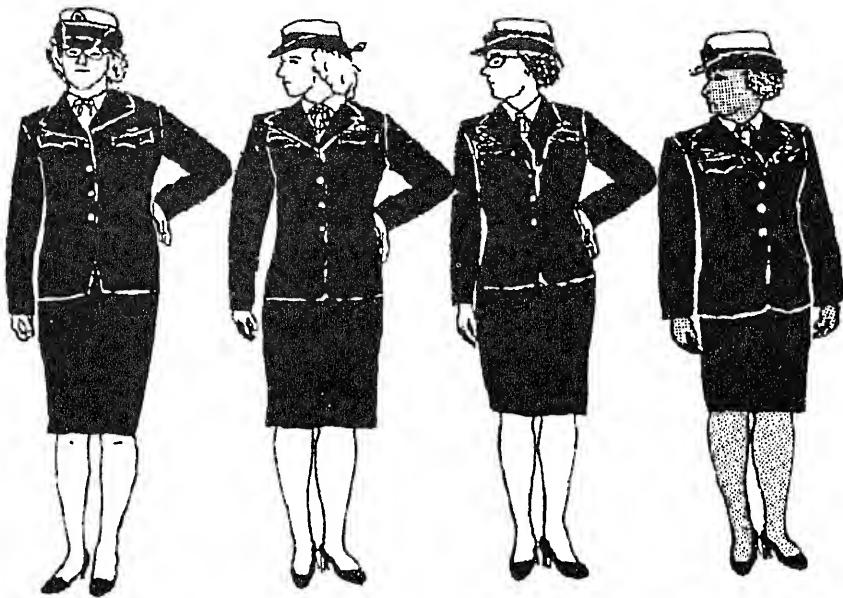


Figure 11-7.—Close interval.

MARCH, all members, except the right flank member, pivot to the left on the ball of the right foot and step off on the left foot (one count). They march forward until they obtain an approximate normal interval, halt, and face to the right. Then they form at normal interval, as previously described (fig. 11-6). Each member drops the left arm when the member to the left has obtained the proper interval.

DOUBLE-ARM INTERVAL: The commands Take Interval To The Left, MARCH tell members at either close or normal interval to form a double-arm interval. At the command MARCH, members move as when extending ranks, except that each member raises both arms and touches the fingertips of the members on either side to obtain the double-arm interval. (The right flank member raises only the left arm, and the left flank member raises only the right arm.) Each member smartly lowers the right arm after obtaining proper interval to the right and lowers the left arm when the member on the left lowers the right arm.

FROM DOUBLE-ARM TO NORMAL INTERVAL: The commands Assemble To The Right, MARCH instruct members to obtain normal interval from double-arm interval. Execute this movement as you would in closing, but form at normal interval.

TO COUNT OFF: The commands Count, OFF instruct members to count off while in a rank or line. On the command OFF, all members, except the right flank

member, smartly turn their heads and look to the right. The right flank member shouts ONE, the next member in rank or line shouts TWO, and so on, in quick cadence on down the line through the left flank member. As each member shouts the appropriate number, he or she turns the head smartly to the front.

Members in a file or column count off when given the commands From Front To Rear, Count, OFF. Each member, starting with the squad leader, turns the head to the right and shouts the appropriate number while turning the head back to the front.

The commands Open Ranks, MARCH are given when more distance between ranks is required; for example, for a personnel inspection. On the command March, the front rank takes two paces forward, the second rank takes one pace (30 inches) forward, and the third rank stands fast. Each succeeding rank takes two, four, or six (15-inch) steps backward. Each rank automatically dresses right as soon as it halts. When the alignment is completed, the commands Ready, FRONT are given.

TO CLOSE RANKS: The commands Close Ranks, MARCH tell members to close ranks. On the command MARCH, the front rank stands fast, the second rank takes one pace forward, the third rank takes two paces forward, the fourth rank takes three paces forward, and so on. You will halt and cover without command.

HAND SALUTE: Begin a salute on the commands Hand, SALUTE, and complete the salute on the command TWO. On the command SALUTE, raise your right hand smartly in the manner described in chapter 4 of this manual. At the command TWO, return to attention by moving your hand smartly in the most direct manner back to its normal position at your side. (If you are in formation, the preparatory command Ready will be given before the command of execution, TWO.)

UNCOVER: Many religious ceremonies, and usually inspections, require you to remove your hat when given the commands Uncover, TWO. On the command Uncover, raise your right hand as in the hand salute, but grasp the brim of your hat with your fingers instead of touching your forehead. Hold this position until the command TWO is given (you may lift your hat slightly so as not to muss your hair); then return your hand and your hat to your side in the most direct manner, but do not remove it with an exaggerated or sweeping motion. On the command Cover, grasp your hat with both hands and place it squarely on your head. Drop your left hand holding the hat brim. On the command TWO, drop your right hand to your side.

DISMISSED: The single command DISMISSED is used to secure an individual or an entire formation.

SUMMARY

What is the purpose of drills and exercises? Is it to see if we know our right from our left? Not really! One

of the purposes is to move a large number of personnel from one place to another in an orderly manner. Another reason is to make sure people receive correct up-to-date information. People listen more closely to and better understand what is being said when they are alert and paying attention. Just imagine a group of people standing around with their hands in their pockets while daydreaming or talking while someone is trying to relay important information. How many people will actually hear and understand what is being said? Probably not many! Drills and exercises also help teach a group of individuals to act as members of a team instead of "doing their own thing."

All branches of the military establishment take pride in the appearance and sharpness of their personnel during ceremonies. The Navy is no exception. During your naval career, you will probably receive some type of award in recognition of an accomplishment. The recognition will probably take place at a command function, such as an inspection or awards ceremony. Ship's company or command personnel standing at attention in formation during such ceremonies makes the award more meaningful and the ceremony more impressive.

REFERENCES

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CHAPTER 12

NAVAL SHIPS AND AIRCRAFT

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe components of the ship's hull.
2. Identify the nomenclature of a ship's superstructure.
3. Determine the location of decks and compartments using the ship's compartment lettering and numbering system.
4. Identify the major types of ships and aircraft of the U.S. Navy.
5. Define the mission of U.S. ships and aircraft.

The U.S. Navy has thousands of vessels and aircraft in its inventory, ranging from small harbor patrol boats to huge super carriers, and from helicopters to giant transport planes. You will not be expected to know the characteristics of each one, but you should be able to recognize the type of ship or aircraft you see. You should also be able to identify its mission and armament and have an idea about its size. The purpose of this chapter is to acquaint you with the major classes of ships and aircraft the Navy operates. We will describe the major types of ships and planes and explain their characteristics and missions. You will also learn some of the more common terms used to identify structural features and the terminology used to express direction and locations aboard ship.

Before describing the types and classes of ships, it is necessary to give some background information about ships in general.

To take advantage of scientific advances, the fleet is continually making significant changes. Cruise missiles, close-in defense systems, and multirole radar units are replacing conventional electronic and weapons systems. The Navy's newest aircraft carriers and submarines are considerably larger than the types used during World War II. With all the Navy's new submarines and aircraft carriers being nuclear powered, their steaming endurance is limited only by the replenishment of necessary supplies and food.

Many of our ships have been modernized to perform a wide variety of missions or to accomplish old missions more efficiently. During overhaul, older ships are

outfitted with new radar, fire control, and communications systems. The hulls are strengthened and power plants are completely reworked to extend the useful lives of these ships. Despite certain advantages of nuclear propulsion, it is not economically sound to convert all our ships to nuclear power. The results do not always justify the added expense.

SHIP TERMS

In civilian life you were accustomed to terms such as *upstairs*, *downstairs*, *windows*, *floors*, *ceilings*, *walls*, and *hallways*. In the Navy, you must learn to describe objects in Navy language. To use civilian terminology aboard ships marks you as a *landlubber*—a scornful term applied to those who know nothing of the sea.

Lengthwise direction on a ship is *fore* and *aft*; crosswise is *athwartships*. The front of the ship is the *bow*; the rearmost is the *stern*. To move forward toward the bow is to go *forward*; to move toward the stern is to go *aft*. Anything that is more toward the bow than another object is *forward* of it, and anything that is more toward the stern is *abait* (behind) the other object.

A ship is divided in half lengthwise by a *centerline*. When you face forward along the centerline, everything to your right is to *starboard*; everything to your left is to *port*. Fixtures and equipment take the name of the side on which they are located, such as the *starboard gangway* and the *port anchor*.

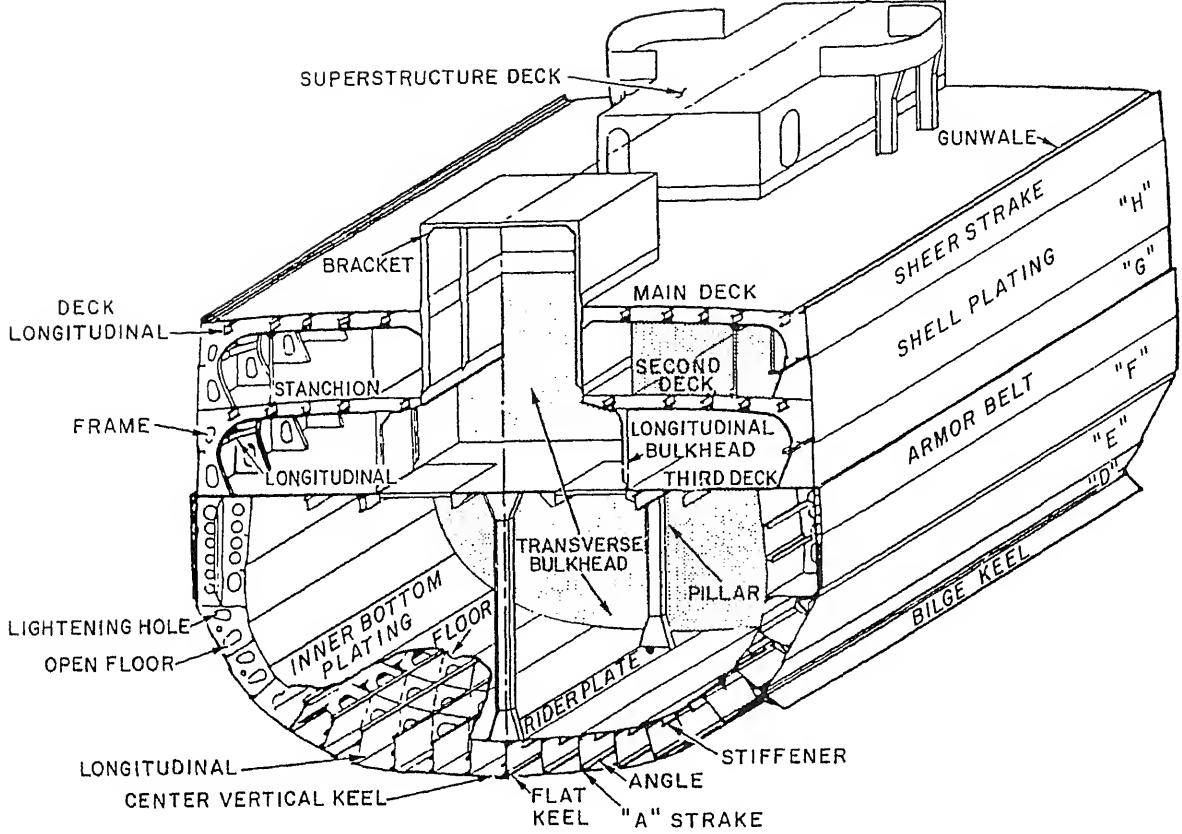


Figure 12-1.—Hull structure of a cruiser.

When you go toward the centerline, you go *inboard*. An object nearer the centerline is *inboard* of another object and that object is *outboard* of the first. The section around the midpoint area is called *amidships* (also called the *waist*). The extreme width of a ship, usually in the midship area, is its *beam*.

You never go downstairs in a ship; you always go *below*. To go up is to go *topside*. However, if you climb the mast, stacks, rigging, or any other area above the highest solid structure, you go *aloft*. Human beings live *in* a ship or *on board* a ship. Inanimate objects, stores, and equipment are *aboard* a ship. Similarly, you *board* a ship or *go on board*. Stores, ammunition, and so on, are *taken aboard* and *struck below*.

An object hanging against the side, bow, or stern is *over* the side, bow, or stern. An object in the water but not touching the ship is *outboard* of or *off* the ship (off the starboard side, off the port bow, and so on). An object in front of a ship is *ahead* of it. An object to the rear is *astern*, never in back. Cooking is done in the *galley*, not in the kitchen.

STRUCTURAL TERMS

The purpose of this section is to define some of the terms related to ship construction—not to tell you how a ship is built. All the terms necessary for you to understand the major structural characteristics of the hull, decks, and superstructure are given.

HULL

Figure 12-1 depicts the hull structure of a cruiser and should be referred to during the explanation of structural terms. The *hull* is the supporting body of a ship. It may be likened to an envelope. Inside the hull are *strengthening members* that prevent the envelope from collapsing. The hull also contains partitions that form machinery, berthing, messing, and other spaces.

The *keel* is the backbone of the ship. The keel of most steel ships does not extend below the ship's bottom; hence, it is known as a flat keel. Its usual shape is that of an I-beam. All other parts used in constructing the hull are attached, either directly or indirectly, to the keel.

The athwartships structure consists of *transverse frames* and *floors*. The floors run outboard from the keel

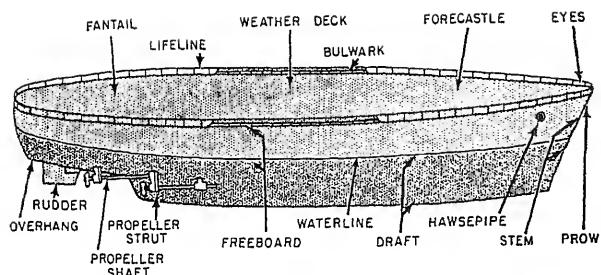


Figure 12-2.—The hull.

to the turn of the bilge (where the bottom turns upward) where they are attached to the transverse frames, which then extend upward to the main deck.

Frames running parallel with the keel are called *longitudinals*. From the turn of the bilge up the sides they are also called *stringers*. The network of floors and longitudinals resembles a honeycomb and is known as cellular construction, which greatly strengthens the bottom of the ship. When the honeycomb is covered by plating, double bottoms are formed. The space between the inner and outer bottoms (known as *tanks*) is used for liquid stowage. Planks laid upon the tank tops are called *ceilings*. The forward end of the keel, which is extended upward, is called the *stem*. The after end of the keel has a similar extension called the *sternpost*. The part of the stem above water is the *prow*; the forward edge of the stem is the *cutwater*.

The interior of a ship is divided into compartments by vertical walls, called *bulkheads*, which run both transversely and longitudinally. Most bulkheads are merely partitions; but spaced at appropriate intervals, they are transverse watertight bulkheads. These bulkheads extend from the keel to the main deck and from side to side to provide extra stiffening and to partition the hull into independent watertight sections. Large ships have a series of longitudinal side bulkheads and tanks that provide protection against torpedoes. The outer tanks usually are filled with oil or water; the inner tanks, called *voids*, are empty. The innermost bulkhead is called the *holding bulkhead*. If a torpedo were to hit the ship, the outer tanks, although ruptured, would absorb enough energy from the explosion that the holding bulkhead would remain intact, thus preventing flooding of vital spaces.

The plates that form the ship's hull, called *strakes*, are fastened to the framework in longitudinal rows. The keel forms the center strake. Strakes are lettered, beginning with the A strake on either side of the keel and extending up to the main deck. Some of the strakes also have names. The A strake is called the starboard strake;

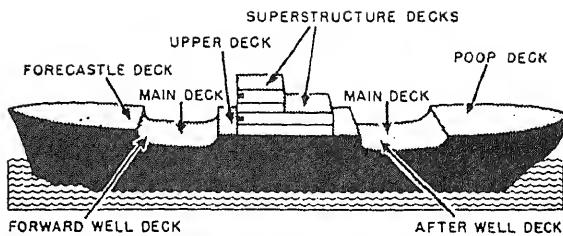


Figure 12-3.—The weather deck.

the strake along the turn of the bilge is the bilge strake; the uppermost strake is the sheer strake. A protecting keel running along the bottom near the turn of the bilge is called a *bilge keel*. Its purpose is to reduce rolling of the ship. (A ship *rolls* from side to side; it *pitches* when it goes up and down fore and aft; it *yaws* when the bow swings to port and starboard because of wave action.)

The upper edges of the sides, where the sheer strakes join the main deck, are called the *gunwales* (rhymes with funnels). The foremost part of the ship, where the gunwales join the stem, is known as the *eyes* of the ship. The port and starboard quarters are located where the gunwales curve inward to the sternpost.

The water level along the hull of a ship afloat is the *waterline*. The vertical distance from the bottom of the keel to the waterline is the ship's *draft*. *Freeboard* is the distance from the waterline to the main deck. Figures 12-2 and 12-3 show various parts of the hull and deck.

DECKS

The floors of a ship are called *decks*. They divide the ship into layers and provide additional hull strength and protection for internal spaces. The undersurface of each deck forms the *overhead* (never the ceiling) of the compartment below. *Compartments* are the rooms of a ship. Some compartments are referred to as rooms, such as wardroom, stateroom, engine room, and others. Generally speaking, you do not use the word *room*. For instance, you never refer to the space where you sleep as the bedroom nor where you eat as the dining room. These spaces are called the *berthing compartment* or *space* and the *messdeck*.

A steel deck is made of steel plating (strakes) running fore and aft. The outboard strake in the deck plating is composed of stringer plates that are welded or riveted to the side plates of the ship and, therefore, add additional strength to the ship's sides. Decks are supported by athwartships deck beams and by fore-and-aft deck girders. Further deck support is provided throughout the ship by vertical steel pillars

called *stanchions*. Stanchions are mounted one above the other or one above a strength bulkhead. (The short posts used as lifeline supports also are called stanchions.) Decks usually are slightly bowed from the gunwale to the centerline to provide for drainage of water and to strengthen the deck. The arch so formed is called *camber*.

A deck or part of a deck exposed to the weather is called a *weather deck* (fig. 12-2). *Bulwarks* are a sort of solid fence along the gunwale of the main (weather) deck. The bulwarks are fitted with freeing ports (scuppers) to permit water to run off during heavy weather.

A deck that extends from side to side and stem to stern is a *complete deck*. On an aircraft carrier, the uppermost complete deck is the *flight deck* from which aircraft take off and land. In all ships but aircraft carriers, the uppermost complete deck is the *main deck*. On an aircraft carrier, the *hangar deck* is the main deck. The hangar deck is the deck on which aircraft are stowed and serviced when not on the flight deck.

The first complete deck below the main deck is the *second deck*; the next, the *third*; the next, the *fourth*; and so on. *Half decks* or *'tween decks* take the number of the deck above and have the fraction 1/2 added to them.

A *strength deck* is just what the name implies. It is a complete deck (usually the main deck) designed to carry not only deck loads on it but also to withstand the hull stresses. A damage control deck (on most ships the second or third deck) is the lowest deck having access through the main transverse bulkheads, from forward to aft. This deck usually contains damage control main repair equipment in addition to the facilities for the control of flooding, sprinkling, and pumping if the ship is damaged.

The following are definitions relating to decks in modern ships (the location of each deck is also given):

Companionways (ladders): Lead from one deck level to another; they may or may not be covered by hatches.

Flats: Plating or gratings installed only to provide working or walking surfaces above bilges.

Forecastle (pronounced folk'sel) *deck*: Deck above the main deck at the bow. Ships that do not have raised forecastles are called flush-deckers. In them, the part of the deck from the stem to just abaft the anchor windlass is the forecastle.

Catwalk deck: First half deck or partial deck below the flight deck.

Half deck: Any partial deck between complete decks.

Levels: Level is a general term used to designate deck heights above the main deck. The first level above the main deck is the 01 (pronounced oh-one) level, the second the 02 level, and so on. Different decks at a particular level, however, carry different names. For example, both a poop deck and a boat deck (usually) are on the 01 level.

Platforms: Partial decks below the lowest complete deck. They are usually broken to admit machinery and are called platform decks or just platforms. They are numbered downward, as first platform, second platform, and so on.

Poop deck: A partial deck above the main deck located all the way aft. A flush-decker does not have a poop deck, so the stern area of the main deck on a flush-decker is called the main deck aft, or the fantail.

Quarterdeck: The quarterdeck is not an actual deck, but an area designated by the commanding officer for the conduct of official functions. It is the station of the officer of the deck in port, and its location depends on how the ship is moored or which side of the ship is tied up to the pier.

Superstructure deck: A partial deck above the main, upper, or forecastle deck that might not extend to the sides of the ship; or if it does, it does not have side plating carried up to it.

Upper deck: A partial deck extending from side to side above the main deck amidships. It is part of the superstructure, which is the part of a ship's structure above the deck. The superstructure does not include masts, yards, stacks, and related parts. The side plating extends upward to the upper deck.

Well deck: Forward part of the main deck between upper deck and forecastle and aft between the upper deck and the poop deck.

DOORS AND HATCHES

Access through bulkheads is provided by *doors* and through decks by *hatches*. *Watertight* (WT) *doors*, as the term implies, form a watertight seal when properly closed. All doors leading to weather decks are of the watertight variety, as are those in structural (watertight) bulkheads. (See fig. 12-4.) The doors are held closed by fittings called *dogs*, which bear up tight on wedges.

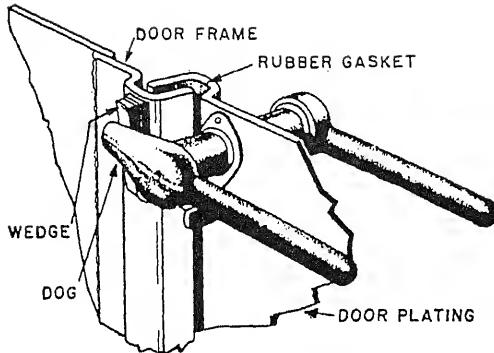


Figure 12-4.—Dogs and gasket for watertight door.

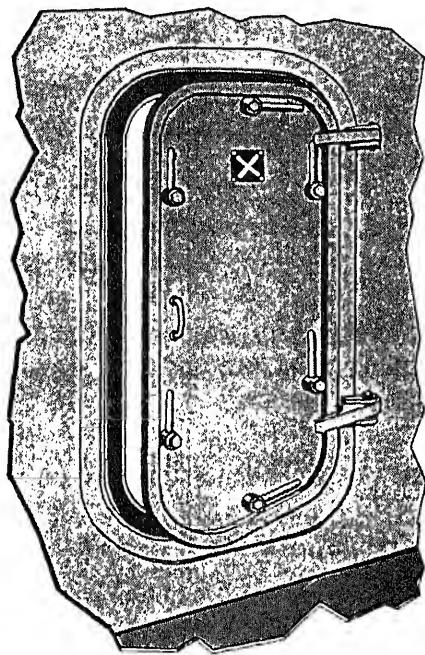


Figure 12-5.—Watertight door with individually operated dogs.

A rubber gasket around the edge of the door presses against a knife edge around the door frame forming a watertight seal when all dogs are properly seated, or dogged down. Some doors have individually operated dogs, as shown in figure 12-5. Other doors are quick-acting types, for which a handwheel or lever operates all the dogs at once, as shown in figure 12-6. In some WT doors are openings, called *passing scuttles*, through which ammunition is passed. These scuttles (small tubelike openings) are flashproof as well as watertight.

Nonwatertight (NWT) doors are used in NWT bulkheads and are of various types. Some slide, some fold, and others are similar to the regular house door (but

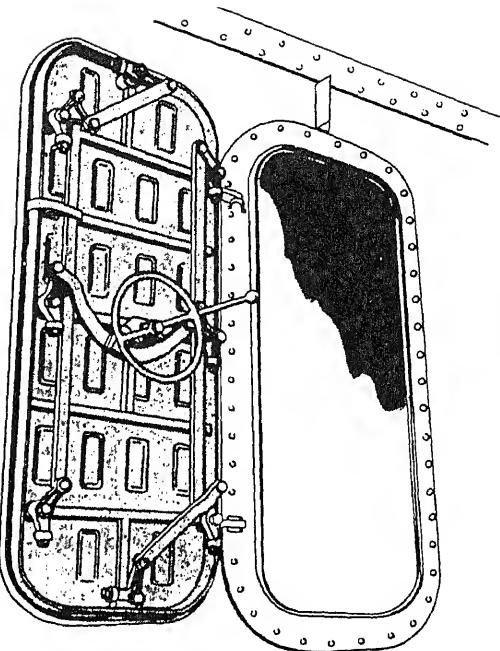


Figure 12-6.—Quick-acting watertight door.

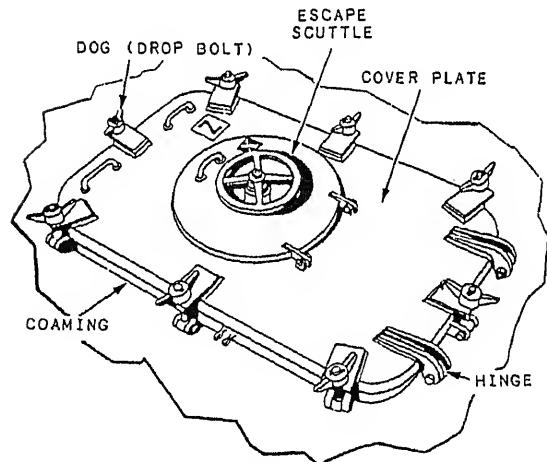


Figure 12-7.—Bolted hatch with escape scuttle.

made of metal). Some NWT doors have dogs, but fewer than those used on WT doors.

Hatches are horizontal openings for access through decks. A hatch is set with its top surface either flush with the deck or on a *coaming* (frame) raised above the deck. Hatches do not operate with quick-acting devices, but must be secured with individually operated dogs or drop bolts.

Figure 12-7 shows a typical hatch with an *escape scuttle*, which is a round opening with a quick-acting closure. An escape scuttle may also be found in the deck

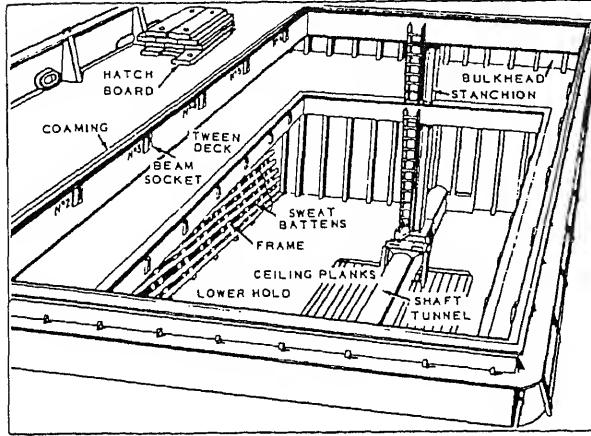


Figure 12-8.—Cargo hatch and hold.

(or overhead) of a compartment that otherwise has only one means of access.

Manholes of the hinged type are miniature hatches provided in decks for occasional access to water, fuel tanks, and voids. Bolted manholes are merely sections of steel plate that are gasketed and bolted over deck access openings. Manholes also are found in bulkheads, but are not as common as deck manholes.

Watertight doors and hatches must be dogged and undogged properly to prevent springing. First, you should set all the dogs opposite the hinges. Pressure should be just sufficient to keep the door shut. Next, set two dogs on the hinge side; then set the remaining ones. Tighten all the dogs handtight. Last, following the same sequence, tighten the dogs with a dog wrench (a short length of pipe). When you open a door, loosen all dogs, starting with those on the hinge side of the door; then remove the dogs from the wedges.

All knife edges and door gaskets must be kept clean and in a good state of preservation at all times. Paint or grease on a door gasket will soon cause deterioration of the gasket, which results in the loss of watertightness. Knife edges that are rusty or bent or have paint on them

will not seal properly. Water in a flooded compartment will quickly flood an adjacent compartment if there is a faulty seal in the WT door or hatch.

A cargo hatch and hold are shown in figure 12-8. The hatch is a large opening in the deck that permits loading and unloading of equipment and materials. It is covered by hatch boards or a mechanical/hydraulic hatch cover. A cargo hatch is protected from the weather by a canvas tarpaulin (tarp for short). The tarp is pulled over the hatch boards and down the sides of the coaming around the hatch and then battened down. That is, the tarp is held secure by wedging battens (slats of wood or steel) that hold it against the side of the coaming.

SUPERSTRUCTURE

The solid part of a ship above the main deck is called the *superstructure* (fig. 12-9). The masts, stacks, and related gear above the superstructure are referred to as the ship's *top hamper* (fig. 12-10). Masts are of three general designs: pole, tripod, and cage. On a single-masted ship, the mast is called simply the *mast*. A two-masted ship has a *foremast* and *mainmast*; a three-masted ship has a *foremast*, *mainmast*, and *mizzenmast*, in that order from forward. *Stacks* (never chimneys or funnels) are the large pipes that carry off smoke and gases from the boilers. The wider lower section of a stack is an *uptake*.

Masts are used to support radio and radar antennas, signal halyards (lines used for hoisting signal flags), signal lights, and booms. Stays and shrouds, together with other wires used for similar purposes on stacks, masts, and so on, are known as the ship's *standing rigging*. Lines or wires used for hoisting, lowering, or controlling booms, boats, and so on, are known as *running rigging*.

The top of a mast is called the *truck*. A small sheave (a pulley, pronounced shiv) at the truck is used to run halyard lines for hoisting. The top of the foremast is the *foretruck*, and the top of the mainmast is the *main truck*.

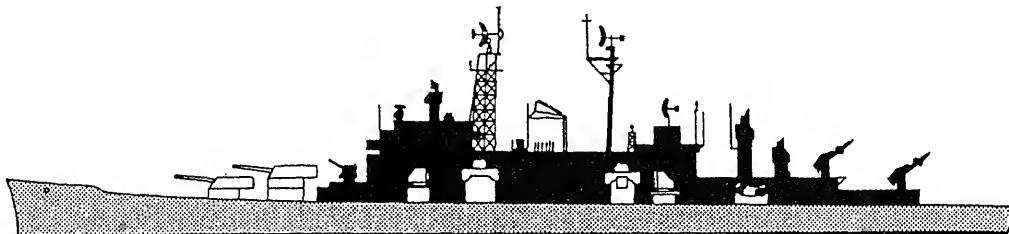


Figure 12-9.—Superstructure.

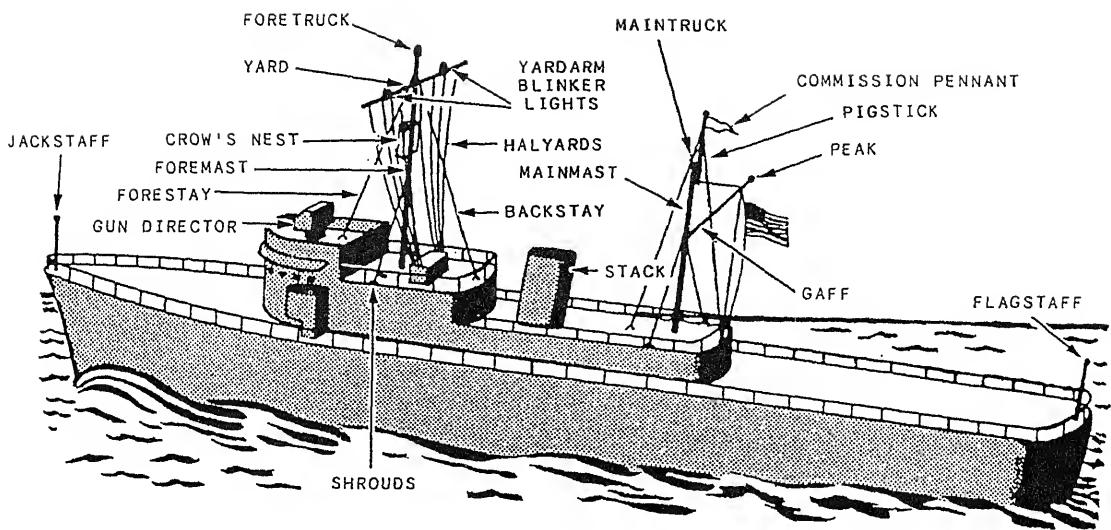


Figure 12-10.—Top hamper.

Commissioned ships of the U.S. Navy fly a commission pennant secured to a pigstick and hoisted to the truck. Ships that have radar antennas at the top of their masts fly the commission pennant from a sheave fixed in the highest convenient location.

Most foremasts have a light spar, called a *yard*, mounted horizontally athwartships on their upper part. The port and starboard halves of a yard are the port and starboard *yardarms*. The yardarms carry a number of sheaves for signal halyards. Also, yardarms usually carry a set (two) of blinker lights, used (by means of a telegraph key) for signaling. The *gaff* is a light spar suspended at an angle abaft the upper part of the mainmast. The upper end of the gaff is the *peak*. It is at the peak that the national ensign is flown while a ship is under way. When a ship is anchored or moored, the national ensign flies from the *flagstaff* at the stern, and the union jack flies from the *jack staff* at the bow.

The *bridge*, from which the ship is controlled while under way, is located in the superstructure. The bridge contains the primary equipment used by the bridge watch personnel to control (*conn*) the movement of the ship: *helm* (steering control), *lee helm* (speed control), and *radar repeaters*. Ships also have a secondary conning station from which control can be maintained if the bridge is put out of commission. Some larger classes of ships have, in addition to the navigation bridge (*conn*), a *flag bridge* for the use of the squadron commander or admiral and staff.

The *signal bridge* (where the Signalmen operate the signal lights, flags, and pennants) is normally located atop the bridge. On aircraft carriers, the signal bridge is abaft and usually one deck above the navigation bridge. Outboard, open ends of a bridge are called *bridge wings*. Located near the bridge is the *chart house*, where charts (maps) are stowed and worked on by the Quartermaster. Also nearby (on some ships) is the *combat information center* (CIC) manned by operations and combat systems department personnel.

Main control is the station where the engineer officer controls the engineering functions of a ship. Main control is normally located below the main deck in boiler or machinery spaces.

Each type of ship uses its superstructure spaces differently; hence, only generalities can be made in describing them. Some of the spaces that may be found in the superstructure, in addition to the bridges, include administration and personnel offices, officers' staterooms (berthing spaces), CPO quarters, a helicopter hangar, and radar and other electronic equipment rooms.

COMPARTMENT DESIGNATION

Every space in a ship (except minor spaces, such as pea coat lockers, linen lockers, and cleaning gear lockers) is assigned an identifying letter and number symbol. This symbol is marked on a label plate secured to the door, hatch, or bulkhead of the compartment. Compartments on the port side end in an even number, and those on the starboard

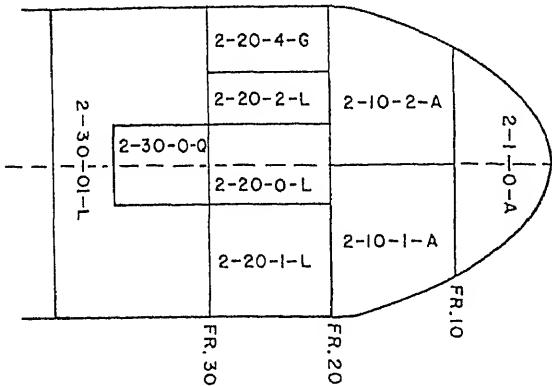


Figure 12-11.—Compartment designations.

side end in an odd number (fig. 12-11). A zero precedes the deck number for all levels above the main deck. Figure 12-12 shows the system of numbering decks.

CURRENT DECK NUMBERING SYSTEM

For ships constructed after March 1949, the compartment designation consists of a deck number, a frame number, the relationship of the compartment to the centerline, and a letter showing the use of the space. Where a compartment extends through two or more decks, the number of the lower deck is used. The frame number indicates the foremost bulkhead of the compartment. If the forward boundary is between frames, the frame number farthest forward within the compartment is used.

Compartments located on the centerline carry the number 0. Compartments to starboard are given odd numbers, and compartments to port are given even numbers. Where two or more compartments have the same deck and frame number, they have consecutively

higher odd or even numbers, as applicable, numbering from the centerline outboard. In this instance, the first compartment to starboard is 1, the second is 3, and so on. To port of the centerline they are numbered 2, 4, and so on. When the centerline passes through more than one compartment with the same frame number, the compartment having the forward bulkhead through which the centerline passes carries the number 0. Compartments above the main deck are numbered 01, 02, 03, as applicable, shown in figure 12-12.

The last part of the compartment number is the letter that identifies the primary usage of the compartment. On dry and liquid cargo ships, a double letter is used for cargo holds to differentiate them from spaces containing the same commodity for use by the ship (for example, fuel oil). Compartment usage in the present system is shown in table 12-1.

Following is an example of compartment designation on a ship built after March 1949:

2 - 175 - 7 - A

Second deck	_____			
Frame number	_____			
Fourth compartment to starboard from the centerline	_____			
Compartment usage (stowage)	_____			

Access closures are numbered in the same manner as compartments, except that the letter designating usage is omitted.

SHIP IDENTIFICATION

Each Navy ship is identified by name and designation. In USS *Forrestal* (CV-59), for example,

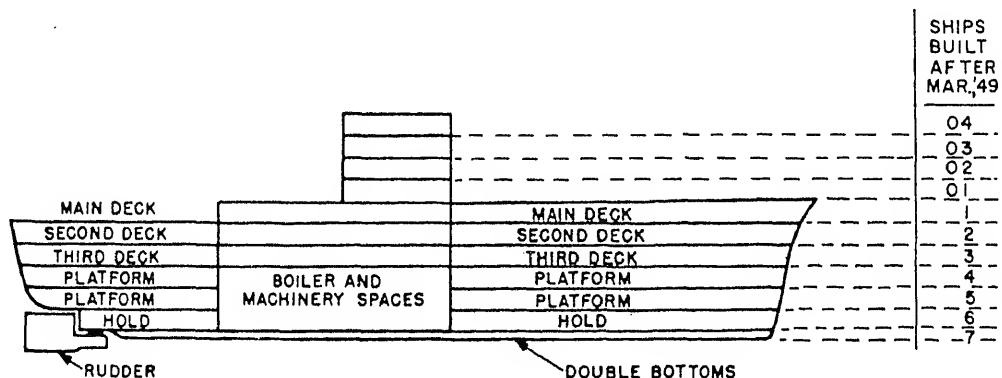


Figure 12-12.—Deck numbering system.

Table 12-1.—Compartment Letters for Ships

Letter	Type of compartment	Examples
A	Stowage spaces	Store and issue rooms; refrigerated compartments
AA	Cargo holds	Cargo holds and cargo refrigerated compartments
C	Control centers for ship and fire-control operations (normally manned)	CIC; plotting rooms; communication centers; pilot-house; electronic equipment operating spaces; IC rooms
E	Engineering control centers (normally manned)	Main machinery spaces; evaporator rooms; steering gear rooms; pumprooms; auxiliary machinery spaces; emergency generator rooms
F	Oil stowage compartments (for use by ship)	Fuel-, diesel-, and lubricating-oil compartments
FF	Oil stowage compartments (cargo)	Compartments carrying various types of oil as cargo
G	Gasoline stowage compartments (ship use)	Gasoline tanks, cofferdams, trunks, and pumprooms
GG	Gasoline stowage compartments (cargo)	Spaces for carrying gasoline as cargo
J	JP-5 fuel (ship use)	Jet fuel stowage spaces
JJ	JP-5 fuel (cargo)	Spaces for carrying JP-5 fuel as cargo
K	Chemicals and dangerous materials (other than oil and gasoline)	Chemicals, semisafe materials, and dangerous materials carried as cargo or for ship's use
L	Living spaces	Berthing and messing spaces; staterooms; washrooms; heads; brig; sick bay; and passageways
M	Ammunition spaces	Magazines; handling rooms; turrets; gun mounts; shell rooms, ready service rooms
Q	Miscellaneous spaces not covered by other letters	Laundry; galley; pantries; wiring trunks; unmanned engineering; electrical and electronic spaces; shops; offices
T	Vertical access trunks	Escape trunks
V	Voids	Cofferdam spaces (other than gasoline); void wing compartments
W	Water stowage spaces	Drainage tanks; freshwater tanks; peak tanks; reserve feedwater tanks

USS means United States ship; CV is the designation—it indicates this type of ship is a multipurpose aircraft carrier. The ship's identifying or hull number is a general indication of the number of ships of the same type that have been built. (There are gaps in the sequence of numbers of most types because of the cancellation of shipbuilding orders, particularly at the end of World War II.) A ship's hull number never changes unless its designation also changes and not always then.

SHIP SIZE

The size of a ship usually is given in terms of its displacement in long tons. Displacement means the weight of the volume of water that the ship displaces when afloat; in other words, the weight of a ship by itself. The Navy uses standard displacement, which is the weight of a ship when ready for sea. All weights given in this chapter are standard displacements, except where otherwise noted. Cargo ships usually are measured in light displacement (no cargo aboard).

carried.

SHIP ARMAMENT

Armament describes the offensive weapons a ship carries: guns, rockets, guided missiles, and planes.

SHIP ARMOR

Armor means protective armor: special steel installed along the sides of the ship, on a deck, and on some gun mounts and turrets.

SHIP SPEED

The speed of a ship is stated in knots, a knot being 1 nautical mile per hour (mph) or about 1 1/8 statute miles per hour. When a ship goes 20 nautical miles an hour, its speed is said to be 20 knots (but never 20 knots per hour). A land (or statute) mile is 5,280 feet. A nautical mile is about 6,080 feet, or roughly 2,000 yards. A ship traveling at 20 knots is, therefore, traveling at the rate of about 23 mph.

SHIP CLASS

Ships are said to be of a particular class. Do not confuse this characteristic with type, which is shown by a ship's designation. The *Forrestal*, for example, was the first of several aircraft carriers of the same general advanced type and configuration to be completed. The next three carriers completed after the *Forrestal* are of the *Forrestal* class; however, later CVs or CVNs (nuclear-powered carriers) of other types are different classes (such as the *Kitty Hawk* class, *Nimitz* class, and so forth).

Our discussion of ship classes is necessarily limited; they are too numerous to describe in detail.

SHIP CATEGORIES

Ships of the U.S. Navy are divided into four categories: combatant ships, auxiliary ships, combatant craft, and support craft.

COMBATANT SHIPS

Combatant ships, depending on size and type, may have missions other than simply "slugging it out" with an enemy ship. Combatant ships are of two types: warships and other combatants.

Most warships are built primarily to attack an enemy with gunfire, missiles, or other weapons. There are exceptions, however, that you will see as we go along. Included in the warship category are the following:

1. Aircraft carriers
2. Surface combatants
 - a. Battleships
 - b. Cruisers
 - c. Destroyers
 - d. Frigates
3. Submarines

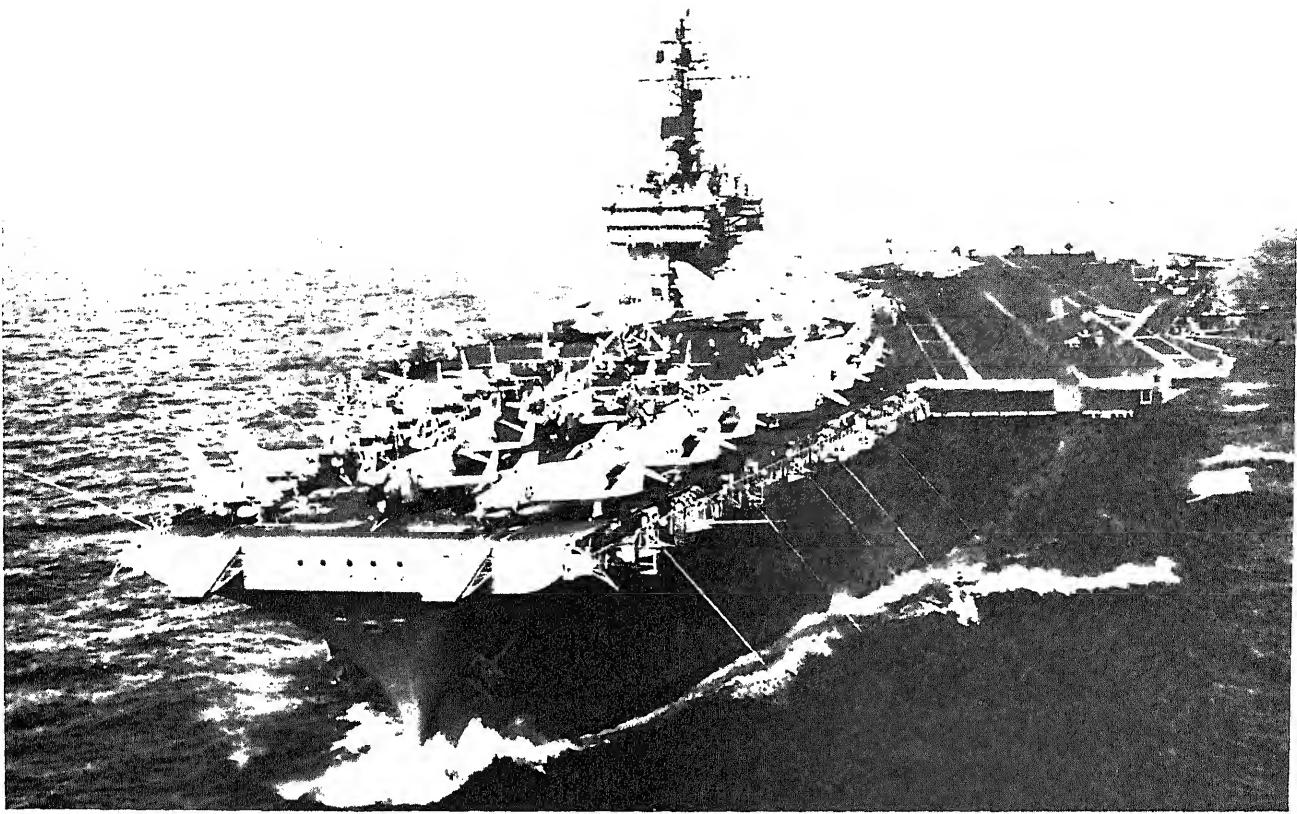
Aircraft Carriers

Aircraft carriers are of three types: multipurpose aircraft carriers (CVs), multipurpose aircraft carriers (nuclear propulsion) (CVNs), and training carriers.

The job of the CV or CVN is to carry, launch, retrieve, and handle combat aircraft quickly and effectively. The aircraft carrier can approach the enemy at high speed, launch planes for the attack, recover them, and retire before its position can be determined. The attack carrier is an excellent long-range offensive weapon and is the center of the modern naval task force or task group. Figure 12-13 shows a *Kitty Hawk* class carrier.

The displacement and aircraft capacity of the older CVs is considerably less than the newer nuclear-powered CVs. The older *Forrestal* class CVs displace about 79,000 tons and embark about 75 aircraft, where the larger *Nimitz* class displaces about 96,000 tons and embarks about 85 aircraft. There is also a big difference in ship's company and air wing complement (personnel assigned). The *Forrestal* class has about 5,400 personnel assigned, while the *Nimitz* class has about 5,700.

All carriers have angled flight decks and steam catapults and are able to launch and recover planes simultaneously. They have a large hangar deck for plane stowage, deck-edge elevators to move aircraft rapidly between the hangar and flight decks, extensive repair shops, storerooms, and fast-fueling equipment. The emphasis is on speed (all carriers can do over 30 knots), endurance, and sea-keeping ability (ability to stay at sea for long



3.71

Figure 12-13.—Multipurpose aircraft carrier (CV).

periods under all conditions), plane-carrying capacity, and maintenance capability.

Surface Combatants

Surface combatant ships are battleships, cruisers, destroyers, and frigates.

BATTLESHIPS.—Battleships (BBs) participated in few surface engagements in World War II, but with their large number of antiaircraft guns, they proved to be excellent support ships in carrier task forces. Another major role was that of providing gunfire support of amphibious landings in both the Pacific and European theaters—only their large-caliber guns could knock out heavily reinforced gun emplacements. They also provided gunfire support in the Korean conflict.

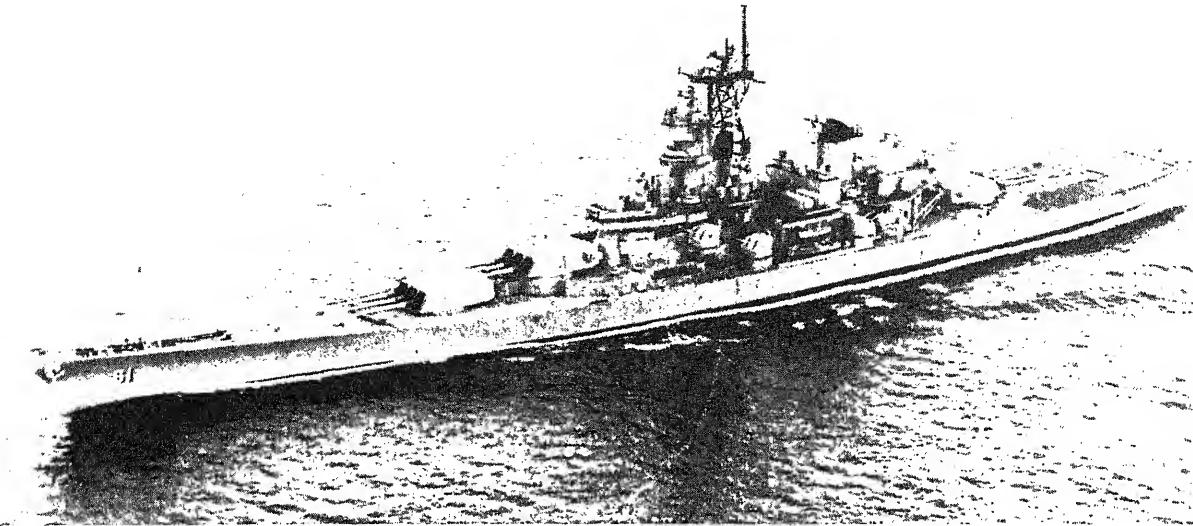
Several battleships (BBs) have been reactivated and modernized in recent years. The modernization included additional armament such as Tomahawk and Harpoon missile systems and Phalanx close-in weapons system (CIWS). They also had significant berthing and engineering modernization. There are

currently two Iowa class (fig. 12-14) battleships in commission, USS *Missouri* (BB-63) and USS *Wisconsin* (BB-64). Since there is little likelihood of our building any more battleships, state names are being given to cruisers like USS *Texas* (CGN-39) (fig. 12-15) and to submarines (SSBNs) like the *Ohio* and *Michigan*.

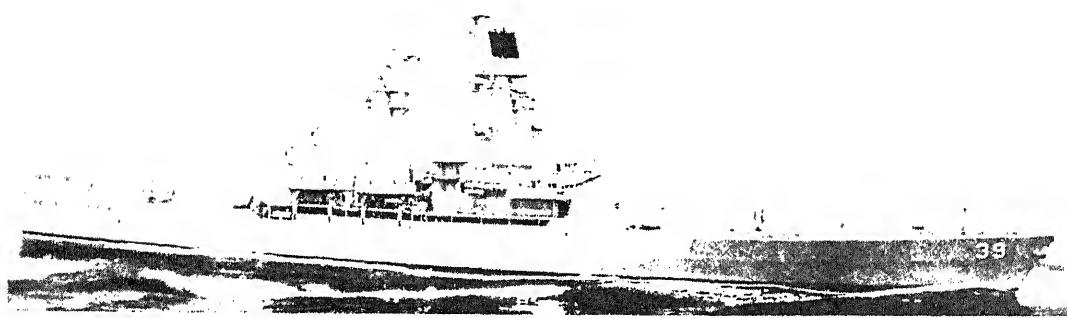
CRUISERS.—Cruisers are medium-sized, general-duty ships. They have a large cruising radius and are capable of high speeds (over 30 knots). They serve as protective screens against surface and air attacks and also provide gunfire support for land operations.

The two basic types of cruisers are the guided-missile cruiser (CG) and guided-missile cruiser (nuclear propulsion) (CGN).

Cruisers displace about 10,000 tons. The CG includes cruisers with missiles, but some of these also have guns that are 5"/54 caliber. CGNs are the same as the CGs except that their main engines are nuclear-powered.



3.345

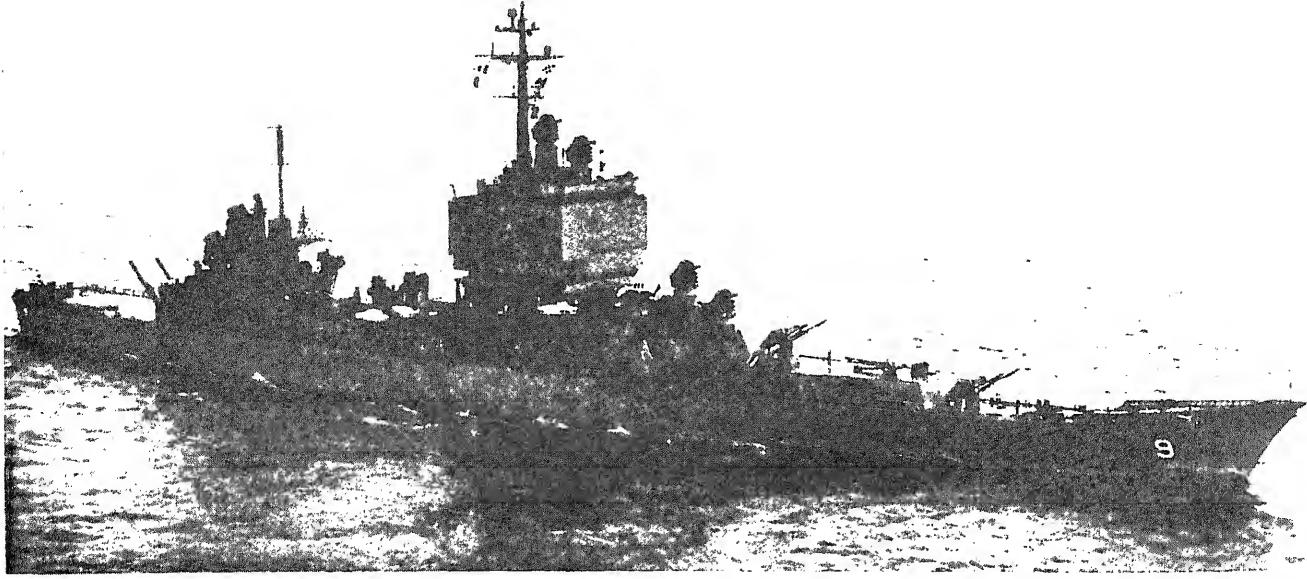
Figure 12-14.—USS *Iowa* (BB-61).

3.346

Figure 12-15.—USS *Texas* (CGN-39).

At one time, cruisers were named after cities; but after the completion of the *Long Beach* (CGN-9) (fig. 12-16), city names were assigned to new-construction auxiliary ships (AOEs/AORs/AFSs). City names are also given to attack submarines, beginning with the Los Angeles (SSN-688) class. Several active cruisers, formerly classified as guided-missile frigates (DLG/DLGN) and named after Navy and Marine Corps personnel and Secretaries of the Navy, have retained their destroyer-type names. Other cruisers, beginning with the DLGN-36 (now CGN-36), are named after states, such as the Virginia class and the California class.

The Ticonderoga (CG-47) class cruisers are built on the Spruance (DD-963) hull. These cruisers are fitted with the Aegis combat system. The Aegis system provides the area coverage, the electronic countermeasures (ECM) resistance, and the fast reaction time to effectively combat the antiship cruise missile threat. Ticonderoga class cruisers are capable of conducting antiair warfare, antisubmarine warfare, and antisurface ship warfare at the same time. They are propelled by gas turbine engines. Their armament includes standard missiles, ASROCs (antisubmarine rockets), two 5"/54-caliber, Mk 45 guns, Harpoon missiles (surface-to-surface), and the Phalanx CIWS.



134.82

Figure 12-16.—Nuclear-powered cruiser *USS Long Beach* (CGN-9)

These cruisers also carry two LAMPS (light airborne multipurpose system) helicopters.

DESTROYERS.—Destroyers (DDs) and guided-missile destroyers (DDGs) are multipurpose ships that are useful in almost any kind of naval operation. They are fast ships with a variety of armament, but little or no armor. For protection, they depend on their speed and mobility. Their displacement varies from about 2,425 tons to 7,800 tons.

The principal mission of destroyers is to operate offensively and defensively against submarines and surface ships and to take defensive action against air attacks. They also provide gunfire support for amphibious assaults and perform patrol, search, and rescue missions.

The destroyer's armament consists of 5-inch guns and a variety of antisubmarine weapons, such as torpedoes, ASROCs, surface-to-air missiles (SAMs), and surface-to-surface missiles.

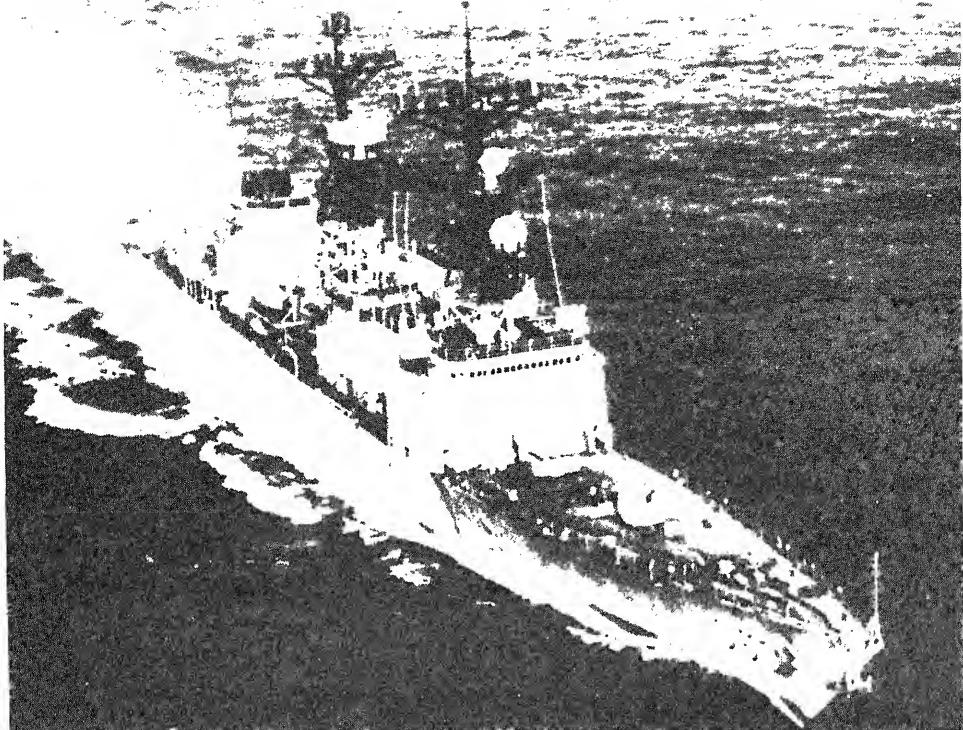
Traditionally, destroyers have been named after Secretaries of the Navy and officers and enlisted personnel of the Navy and Marine Corps.

Because destroyers make up the Navy's largest group of similar types of ships, we will mention only a few to give you some idea of the several types and classes.

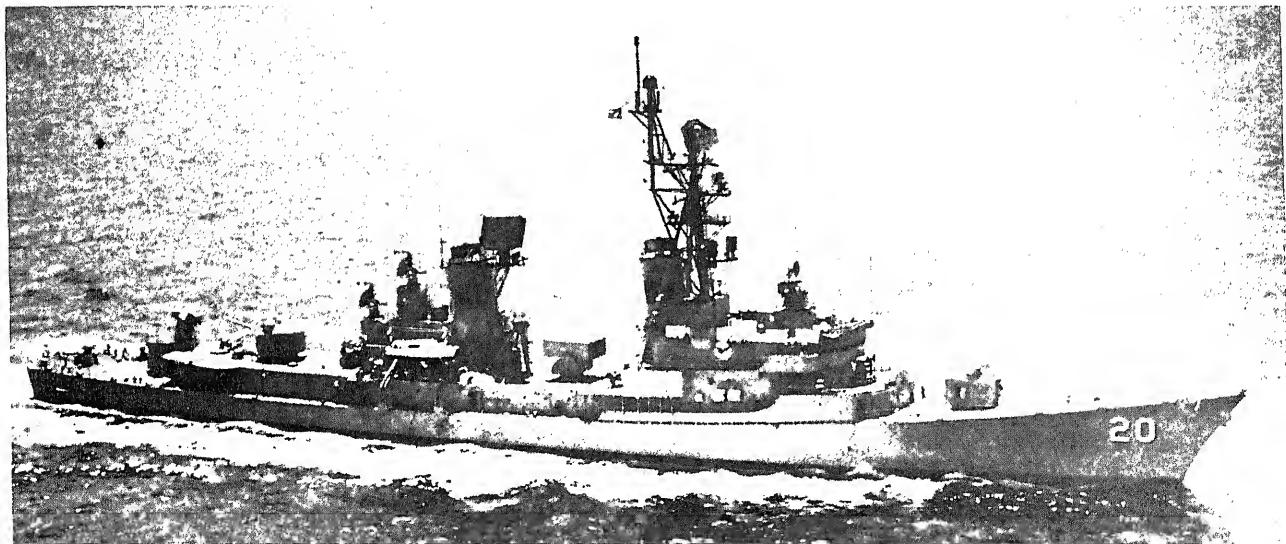
The Spruance (fig. 12-17) class destroyers displace 7,800 tons fully loaded. Each of these ships has two 5"/54-caliber guns, one Seasparrow missile launcher, one ASROC launcher, and two Mk 32 triple-torpedo tubes. They also have full helicopter facilities to accommodate LAMPS, which is now the SH-2H or SH-60B helicopter, and the larger Sea King SH-3 helicopter. The Spruance class destroyers are the first large U.S. warships to use gas-turbine propulsion. This propulsion system was selected because of its smaller space requirements, rapid replacement capability, and cold start capability. (The engines can go from "cold iron" to full power in 12 minutes.)

The Kidd (DDG-993) class guided-missile destroyers are designed around the *Spruance* hull and engineering plant. Armament includes two Mk 26 Tartar/ASROC launchers; two Quad Harpoon canisters; two Mk 45, 5"/54-caliber gun mounts; and two Vulcan/Phalanx CIWSs. There are facilities for two SH-2 LAMPS or one LAMPS III. Displacement of these ships is 8,500 tons and propulsion is gas turbine.

Guided-missile destroyers (DDGs) of the Coontz class were formerly designated frigates. They displace 5,800 tons fully loaded. Each of these ships has one 5"/54-caliber gun mount, one ASROC launcher, and two Mk 32 triple-torpedo tubes. Coontz class destroyers also have the capability to launch surface-to-surface and surface-to-air missiles.



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Figure 12-17.—USS *Spruance* (DD-963).

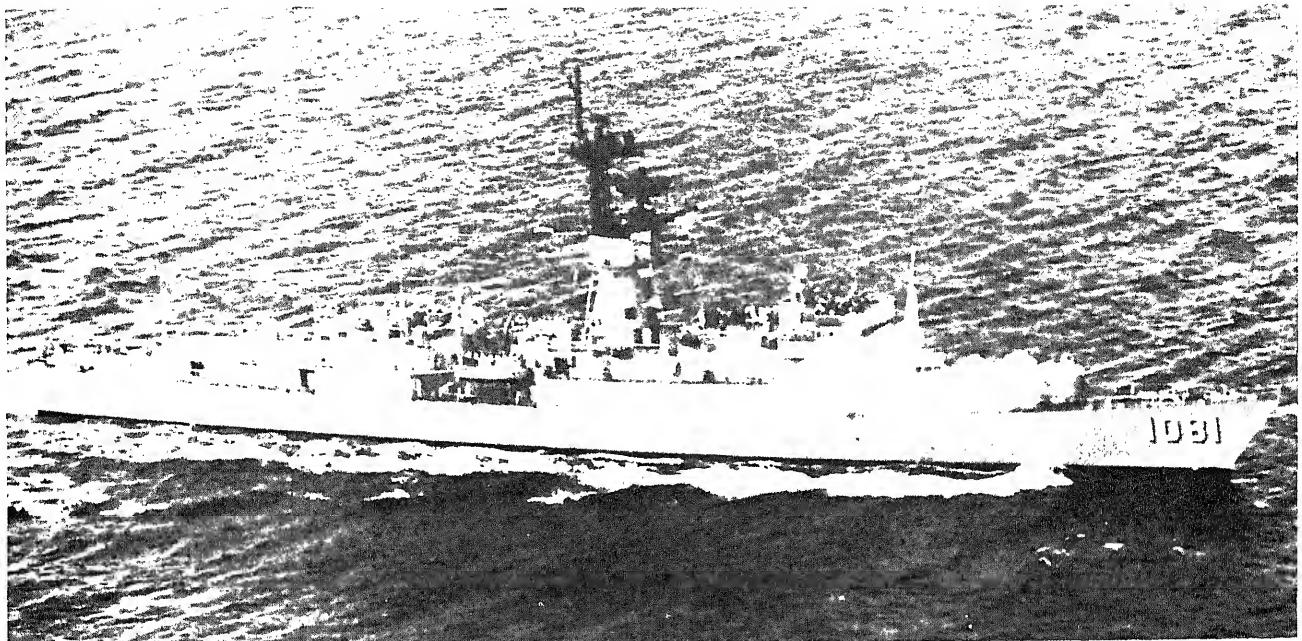
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Figure 12-18.—Guided-missile destroyer (DDG) of the Charles F. Adams class.

DDGs of the Charles F. Adams class (fig. 12-18) are considered excellent multipurpose ships. They displace 4,500 tons fully loaded. Each ship has one ASROC launcher, two Mk 32 triple-torpedo tube mounts, and two 5"/54-caliber gun mounts. The ships are equipped

to launch Harpoon surface-to-surface and Tartar surface-to-air missiles.

FRIGATES.—The U.S. Navy adopted the classification "frigate" for ships used for open-ocean escort and patrol. When they were developed during



134.87

Figure 12-19.—Frigate USS *Aylwin* (FF-1081) of the Knox class firing ASROC.

World War II, frigates (FFs) were classified as destroyer escorts (DEs).

Frigates resemble destroyers in appearance, but they are slower, have only a single screw, and carry less armament. FFs have grown in size from about 1,500 tons displacement to over 4,000 tons, as in the Knox (FF-1052) class. Their armament varies from class to class. The *Oliver Hazard Perry* (FFG-7) has a single 76-mm, 62-caliber, dual-purpose gun; a 20-mm Vulcan/Phalanx rapid-fire gun; a single launcher for Harpoon missiles; two SH-2H LAMPS helicopters; and two Mk 32 triple-torpedo tubes.

The Knox class (fig. 12-19) has one Seasparrow missile launcher, one 5"/54-caliber gun, one 20-mm Vulcan/Phalanx gun, one ASROC launcher, and four Mk 32 fixed torpedo tubes. The Knox class also has facilities for one SH-2H LAMPS helicopter.

Submarines

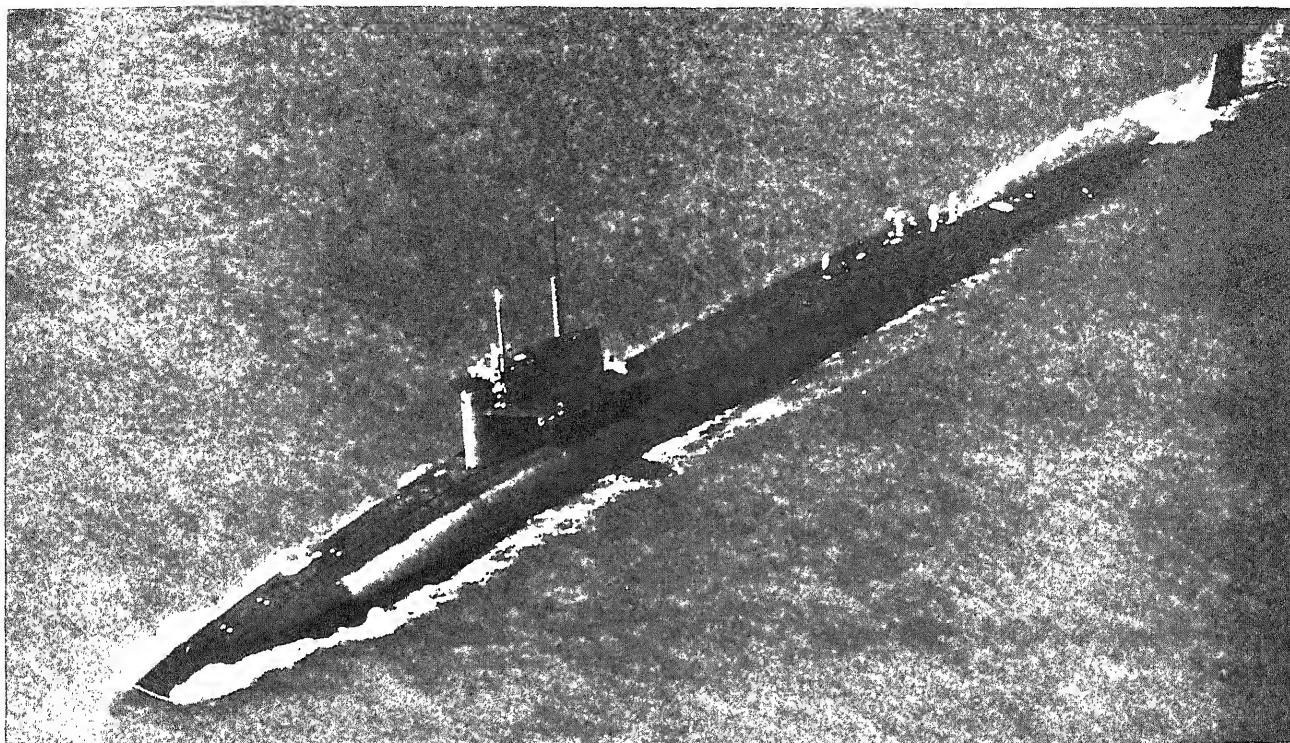
For many years submarines were given the designation of SS. They were conventionally powered (diesel) ships and had great difficulty remaining at sea for extended periods. With the arrival of nuclear power in the mid-50s, the Navy began construction of only nuclear-powered submarines. The Navy now deploys two types of

submarines: attack submarines (SSNs) and ballistic missile submarines (SSBNs).

The mission of nuclear attack submarines (SSNs) is to locate and destroy enemy ships and submarines. They also act as scouts, deliver supplies and personnel to locations in enemy territory, and perform rescue missions. Fleet ballistic missile submarines (SSBNs) deliver ballistic missile attacks against assigned targets from either a submerged or surfaced condition.

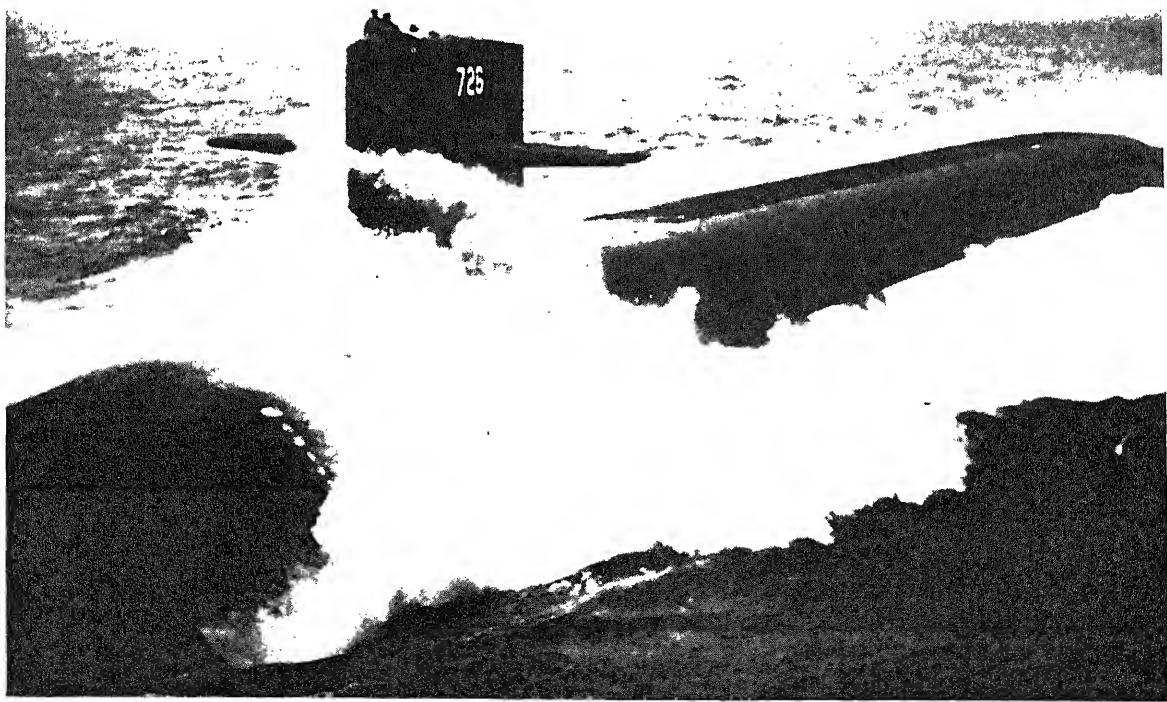
Nuclear power has turned the submersible surface ship into a true submarine that no longer requires frequent replenishment of fuel and supplies. (Examples: (1) the *Nautilus*, our first SSN, steamed over 62,000 miles without refueling; (2) during a test, the *Seawolf* remained submerged for 60 days; (3) the *Triton* traveled around the globe underwater, remaining submerged for 83 days.) The submarine's crew does not depend on the earth's atmosphere for air. Units of air-revitalization equipment change the air completely every few minutes. Electrolytic oxygen generators permit the submarine to extract its own oxygen from seawater.

In July 1960, USS *George Washington* (SSBN-598) successfully launched, for the first time, a Polaris guided missile from under water. This shot radically changed



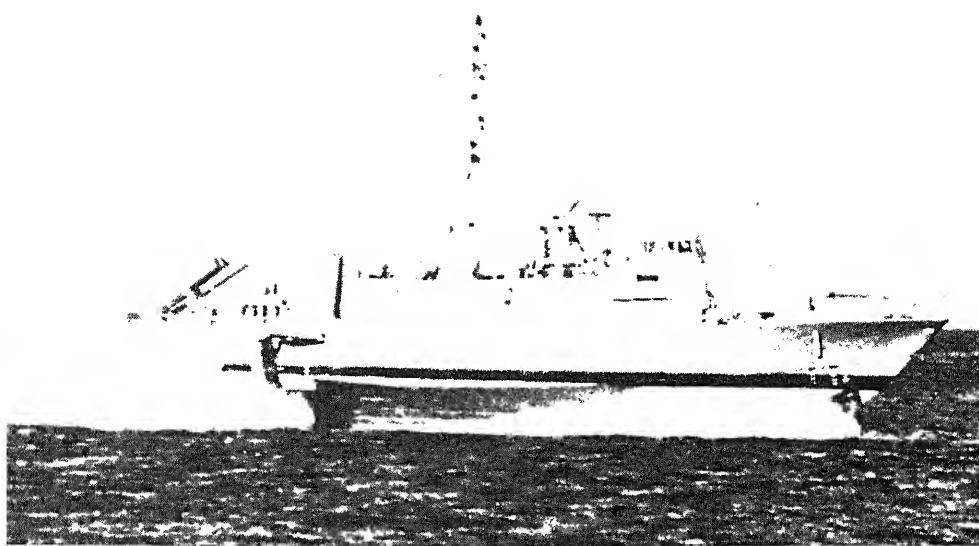
71.1

Figure 12-20.—Ballistic missile submarine (SSBN).



3.347

Figure 12-21.—USS *Ohio* (SSBN-726).



134.190

Figure 12-22.—USS *Pegasus* (PHM-1) patrol hydrofoil missile ship.

the old concept of submarine warfare, which was simply to sink enemy ships or submarines with torpedoes. Now, nuclear-powered, high-speed submarines are able to cruise for months at a time. They can launch an effective attack against targets on shore while remaining virtually immune to retaliation. These SSBNs carry 16 Trident missiles. All submarines now being built have nuclear power. (See fig. 12-20.)

Most of the SSBNs are being converted to carry Trident missiles, which have greater range and multiple warheads. A new class of submarine, the Ohio class (fig. 12-21), has been developed for the Trident missile. The Ohio class is the largest undersea craft developed by the Navy. It displaces 16,600 to 18,700 tons. The size of the Trident submarine is dictated by the larger size missile required for ranges of 4,000 to 6,000 miles and by the larger reactor plant required to drive the ship. The submarine has 24 tubes for the Trident missile and 4 torpedo tubes located in the bow.

A nuclear-powered attack submarine, like that of the Sturgeon class, displaces 3,800 to 4,700 tons, can do more than 20 knots, and has four torpedo tubes. The newer Los Angeles class fast-attack submarine displaces about 9,700 tons, has four torpedo tubes, and can attain speeds of over 20 knots.

Early submarines were named after marine life. The first SSBNs, however, were given names of persons well known in American history, like *George Washington*, *Patrick Henry*, and *Lafayette*. The new fast-attack submarines (SSNs) are named after American cities—like the *Los Angeles*, *Albuquerque*, and

Memphis. The Tridents (SSBNs) are being named after American states—like the *Ohio* and *Michigan*.

OTHER COMBATANTS

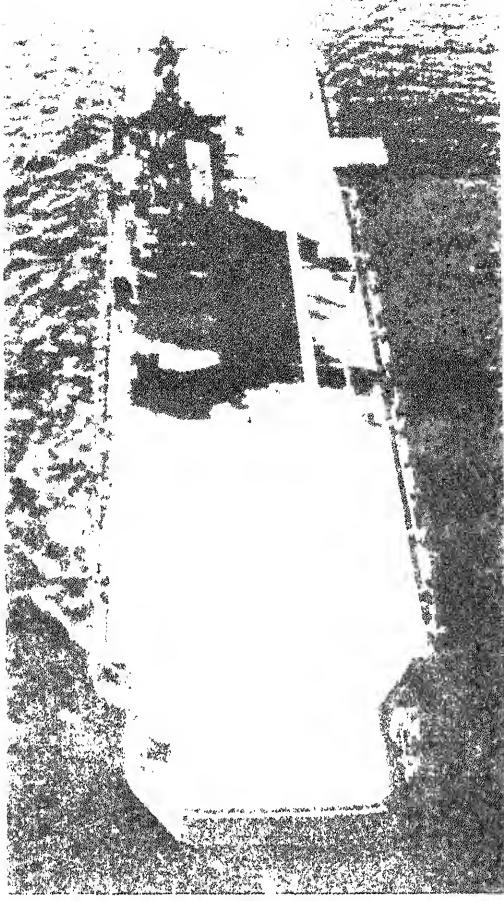
Other ships classified as combatants are patrol combatant ships, amphibious warfare ships, and mine warfare ships.

Patrol Combatants

Figure 12-22 shows the patrol combatant USS *Pegasus* (PHM-1). Patrol combatants are designed to operate offensively against hostile surface combatants and other surface craft and to conduct surveillance, screening, and other special operations. These ships have the unique capability of operating in two different modes. They can operate in the hull-borne mode, conducting surveillance and special operations. They can also operate in the foil-borne mode to conduct screening, attack, and high-speed surveillance operations. In the foil-borne mode these ships have an amazingly fast response to speed requirements and are capable of providing a potent punch. These ships have been significantly involved in the national drug interdiction program. The armament consists of a 76-mm rapid-fire gun and an 8-tube Harpoon ship-to-ship missile launcher. These ships normally have a crew complement of 25.

Amphibious Warfare Ships

An amphibious assault operation is the fastest means of landing large numbers of personnel,



134.194

Figure 12-23.—USS *Tarawa* (LHA-1).

equipment, and supplies on enemy-held territory. The lessons learned during World War II, Korea, and Vietnam have resulted in the U.S. Navy having the largest and most capable amphibious force in the world. With the introduction of new classes of ships and new types of landing craft and helicopters, the U.S. Navy can conduct an amphibious operation almost anywhere in the world.

AMPHIBIOUS ASSAULT SHIPS.—One amphibious assault ship (LHA), USS *Tarawa* (fig. 12-23), is able to embark, deploy, and land a marine battalion landing team by helicopters, landing craft, amphibious vehicles, and combinations of these methods. It combines the features of the LPH, LPD, LKA, and LSD into a single ship. For self-defense against surface and air attack, the LHA is equipped with 5-inch guns and point defense missiles.

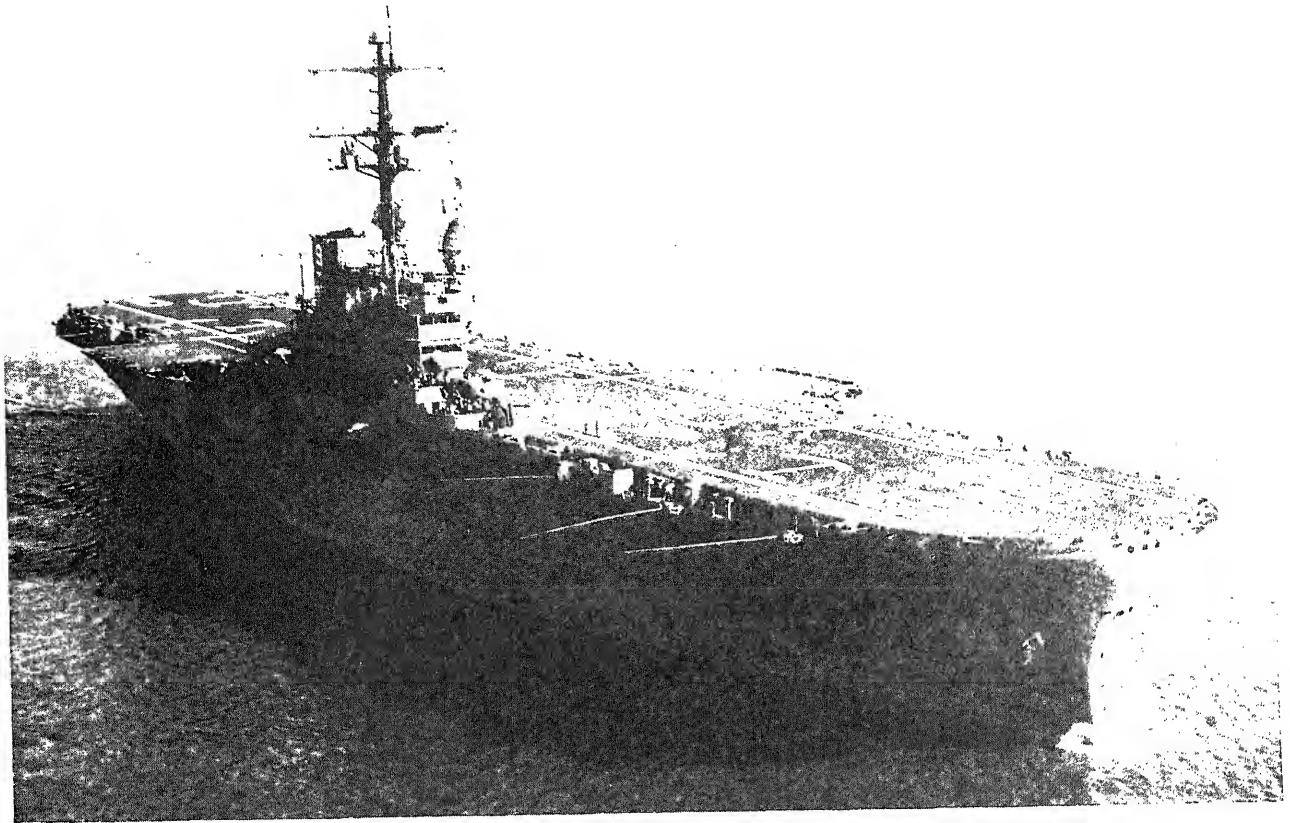
Another amphibious assault ship (LPH), USS *Guam* (fig. 12-24), is designed to embark, transport, and

land 2,000 troops and their equipment by means of transport helicopters in conjunction with a beach assault. This vertical envelopment is more effective than previous methods of amphibious landings. The most significant feature is the ability to commit the landing force in assault without being limited to favorable beaches. It provides for establishment of a beachhead in the enemy's territory more quickly. The large concentration of personnel and equipment that existed on the landing beach in early stages of the amphibious assault of World War II is eliminated. With this dispersal of forces, there is less likelihood of extensive casualties. When not used in amphibious assaults, LPHs have the capability of assisting in antisubmarine warfare.

AMPHIBIOUS TRANSPORT DOCK.—The amphibious transport dock (LPD) incorporates features of the LSD and LPH. The LPD (fig. 12-25) has the capability to transport embarked troops and their equipment together and has the facilities to move troops and equipment by landing craft or helicopter. The landing craft are transported internally and can be launched through an opening in the stern while the ship is under way or dead in the water. The deck over the well that carries the landing craft provides a platform for helicopter operations. The LPD frequently serves as a satellite to the LPH during vertical assault operations. The LPD is capable of embarking about 900 troops.

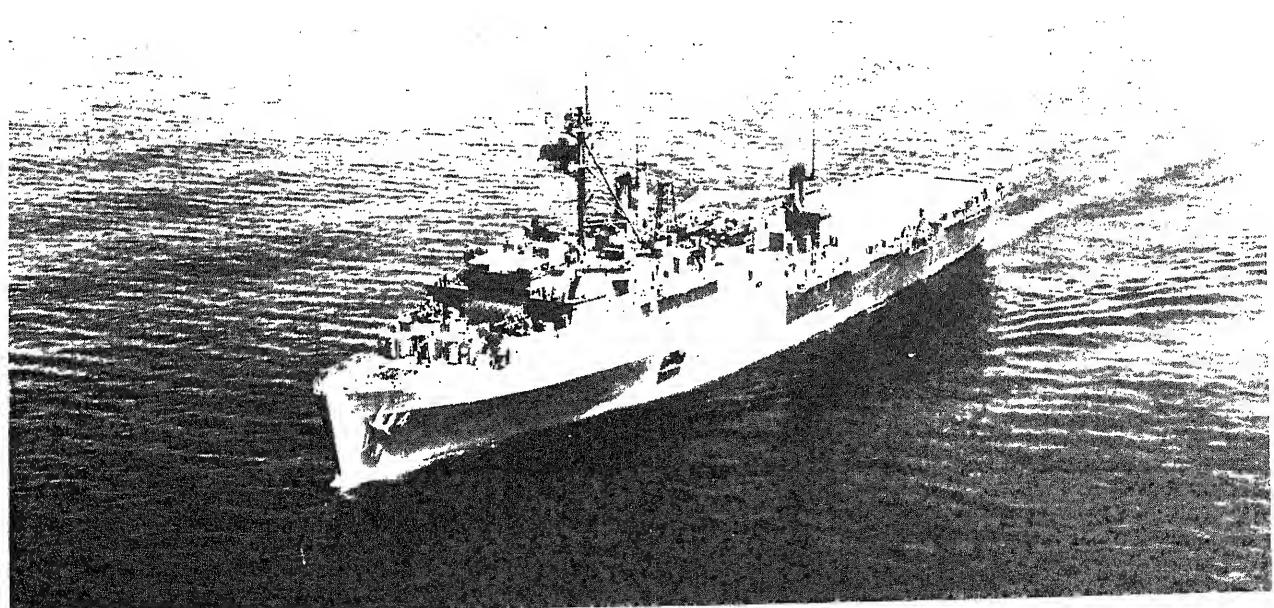
AMPHIBIOUS CARGO SHIPS.—Amphibious cargo ships (LKAs) (fig. 12-26) are designed to carry heavy equipment and supplies in support of amphibious operations. A wide variety of cargo items may include jeeps, trucks, tanks, large guns, and provisions. This cargo is combat loaded (cargo is placed on board in reverse order to allow rapid off-loading when required) and may exceed 5,000 tons. When they arrive at their destination, the cargo is normally delivered to the assault site by the ships' own landing craft, along with a limited number of troops. This class of ship was among the first to have a fully automated main propulsion plant. Some of these ships have been transferred to the Reserve Force.

DOCK LANDING SHIPS.—Dock landing ships (LSDs) (fig. 12-27, view A) were designed to transport and launch a variety of amphibious craft and vehicles with embarked crews and troops. The types of amphibious craft vary from the newer LCAC (landing craft air cushion) to the conventional LCU (landing craft utility) or LCM (landing craft mechanized). The number of amphibious craft embarked will vary, depending on the type of craft and class of ship.



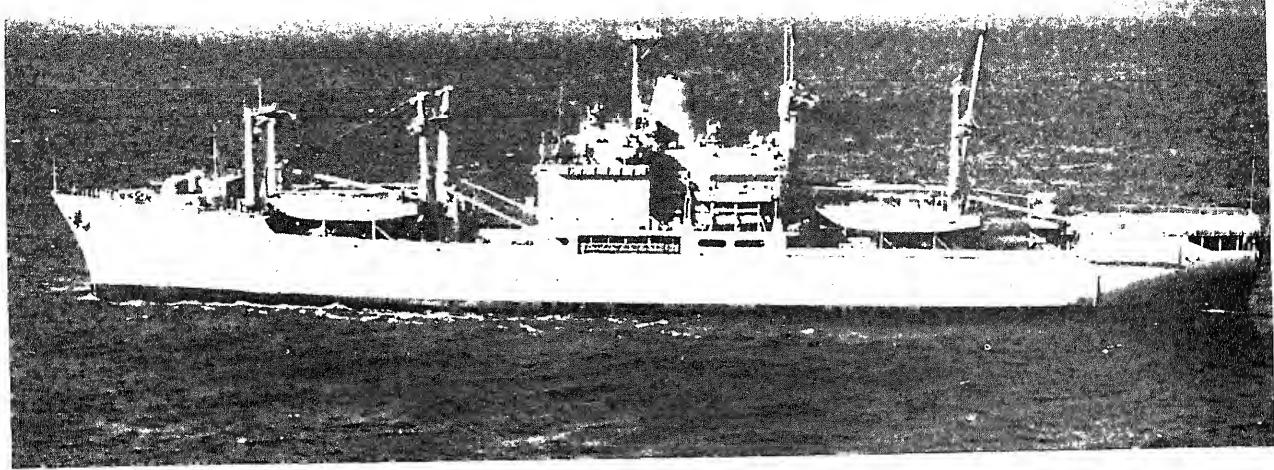
3.86

Figure 12-24.—Amphibious assault ship *USS Guam* (LPH-9).



3.87

Figure 12-25.—USS *Austin* (LPD-4) transports troops and their equipment.



3.81

Figure 12-26.—Amphibious cargo ship (LKA).

The newer class of LSD is capable of transporting and operating four LCACs while the older classes may embark only three. A newer variant of the LSD will be designed to handle only two LCACs but will have a larger cargo capacity. All landing craft operate from a well deck (fig. 12-27, view B) that is over 300 feet long and 50 feet wide. These ships also have a helicopter platform over the well deck that allows them to conduct limited helicopter operations.

TANK LANDING SHIPS.—Tank landing ships (LSTs) (fig. 12-28) were developed during World War II. The Navy required a ship capable of transporting troops, tanks, ammunition, and all sorts of supplies. The LSTs of today's fleet are fitted with bow doors and a bow ramp that give access to the tank deck. Another ramp and turntable in the tank deck enable vehicles to turn around and reach the main deck under their own power. They also have a stern gate that permits off-loading of amphibious vehicles directly into the water. In addition to transporting and landing equipment in amphibious assaults, these ships can transport and launch a pontoon causeway section in support of amphibious operations. With booms and winches mounted on the main deck forward, this class of ship is capable of numerous missions.

AMPHIBIOUS COMMAND SHIPS.—Amphibious command ships (LCCs) (fig. 12-29) provide amphibious command and control for major amphibious operations. With the latest command and control facilities available, these ships have become fleet flagships. They are capable of supporting a naval

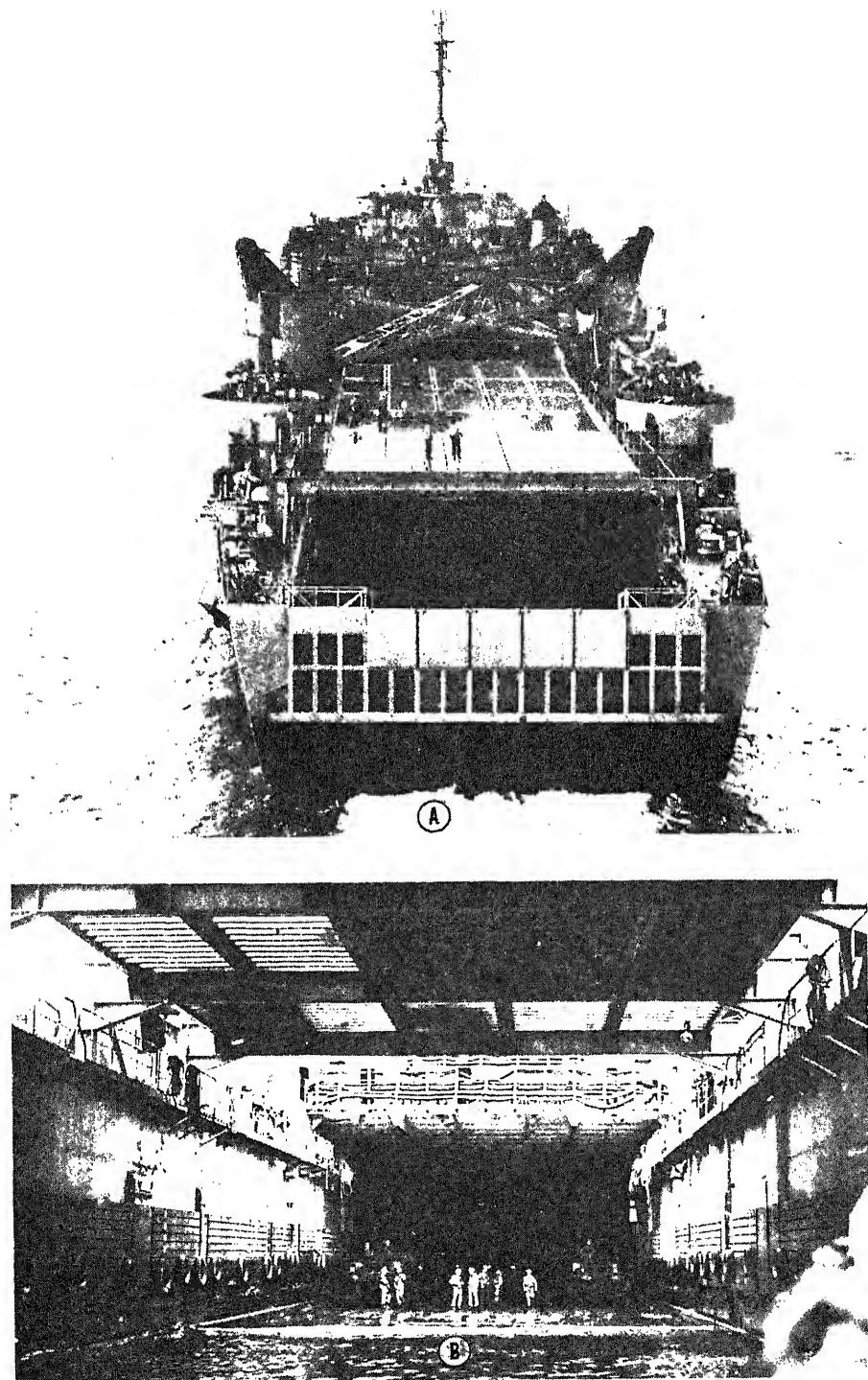
amphibious task force, a landing force, and an air force simultaneously.

Mine Warfare Ships

The U.S. Navy is currently updating its mine countermeasures fleet. In recent years the largest number of the Navy's mine countermeasures fleet was assigned to the Reserve Force. With the introduction of the new Avenger class (MCM) (mine countermeasure) and Osprey class (MHC) (mine hunter coastal) and the Craft of Opportunity Program (COOP), the Navy will again have a very effective and reliable mine countermeasure capability.

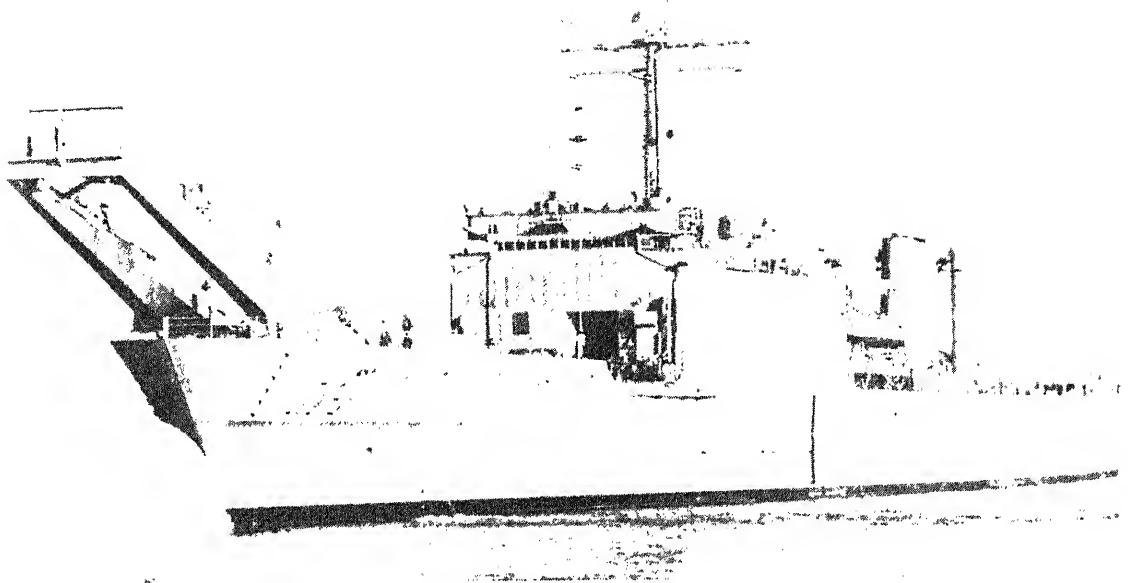
AUXILIARY SHIPS

Today's fleet is highly mobile and can respond to an area of conflict quickly. Its ships cannot, however, remain on station indefinitely. There must be a means of resupply and repair. The auxiliary ships of today's fleet are the lifeline to the combatant force. These ships keep the fleet operating by furnishing vital supplies and repair facilities. They can deliver such items as fuel, food, ammunition, and repair parts. The types of ships in the auxiliary force range from fast combat support ships (AOEs) to submarine rescue ships (ASRs). The type of service an auxiliary provides determines its classification. The initial letter in each designation is the letter A. The second and subsequent letter indicates the service it performs. An AE indicates an ammunition (explosives) supply ship, while an AS is a submarine tender (repair). These types of ships do not always



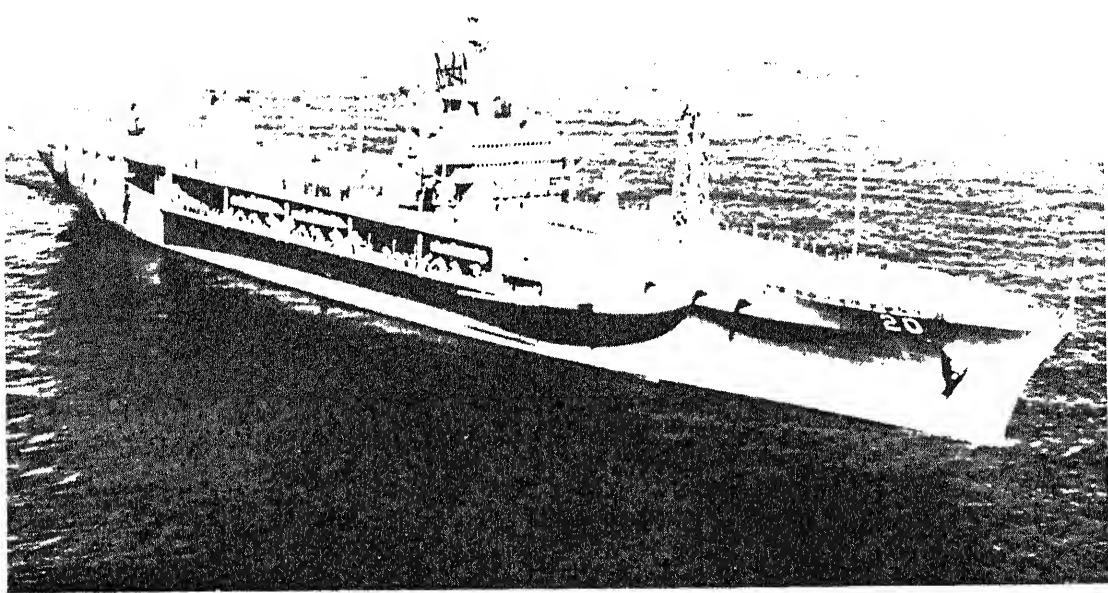
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Figure 12-27.—Dock landing ship (LSD).



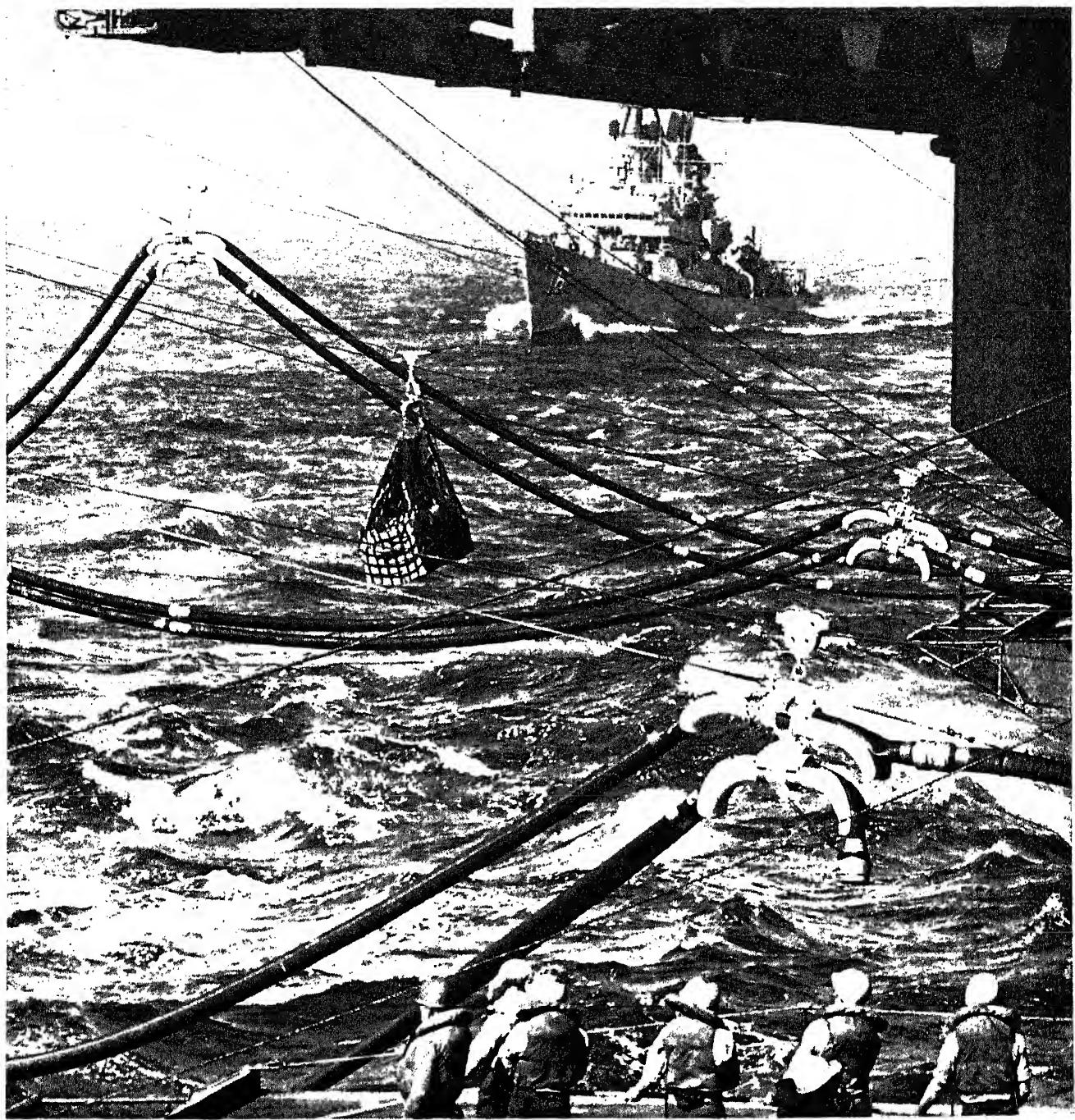
134.191

Figure 12-28.—USS *Newport* (LST-1179).



134.195

Figure 12-29.—USS *Mount Whitney* (LCC-20).



134.89

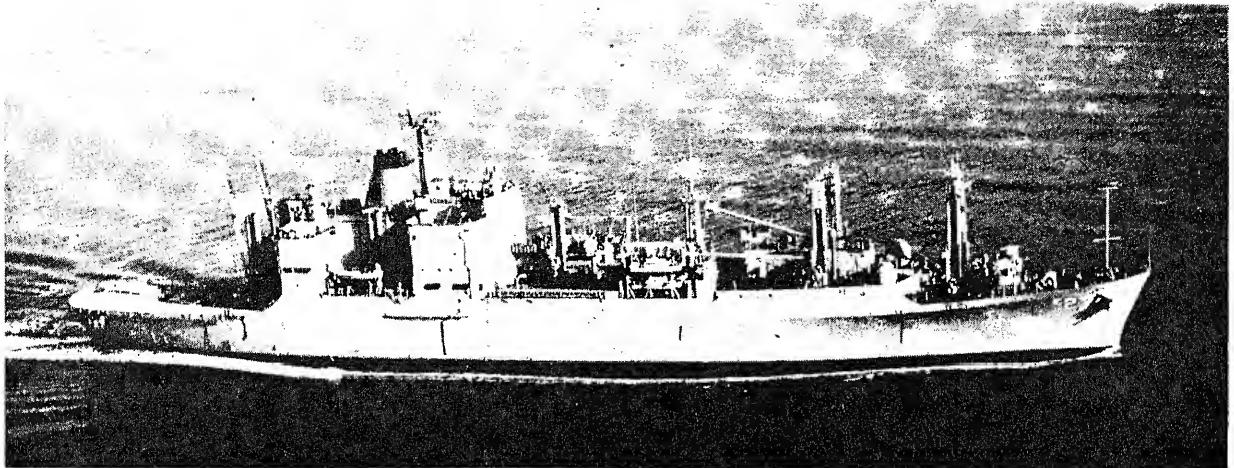
Figure 12-30.—Replenishment at sea enables the fleet to remain at sea and make successive strikes without returning to base for fuel, ammunition, and supplies.

receive the level of publicity a carrier or cruiser might receive, but they fight and work just as hard in times of emergency. Certain classes of auxiliaries have the capability to function in many roles. An AOE is capable of supplying not only fuel and ammunition, but can supply dry stores and refrigerated stores. An AD, whose primary mission is assisting destroyers with necessary battle damage repair, can also assist carriers and in some

cases, even submarines with emergency repairs. With their ability to steam at high speeds, they are able to remain with a battle group for extended periods.

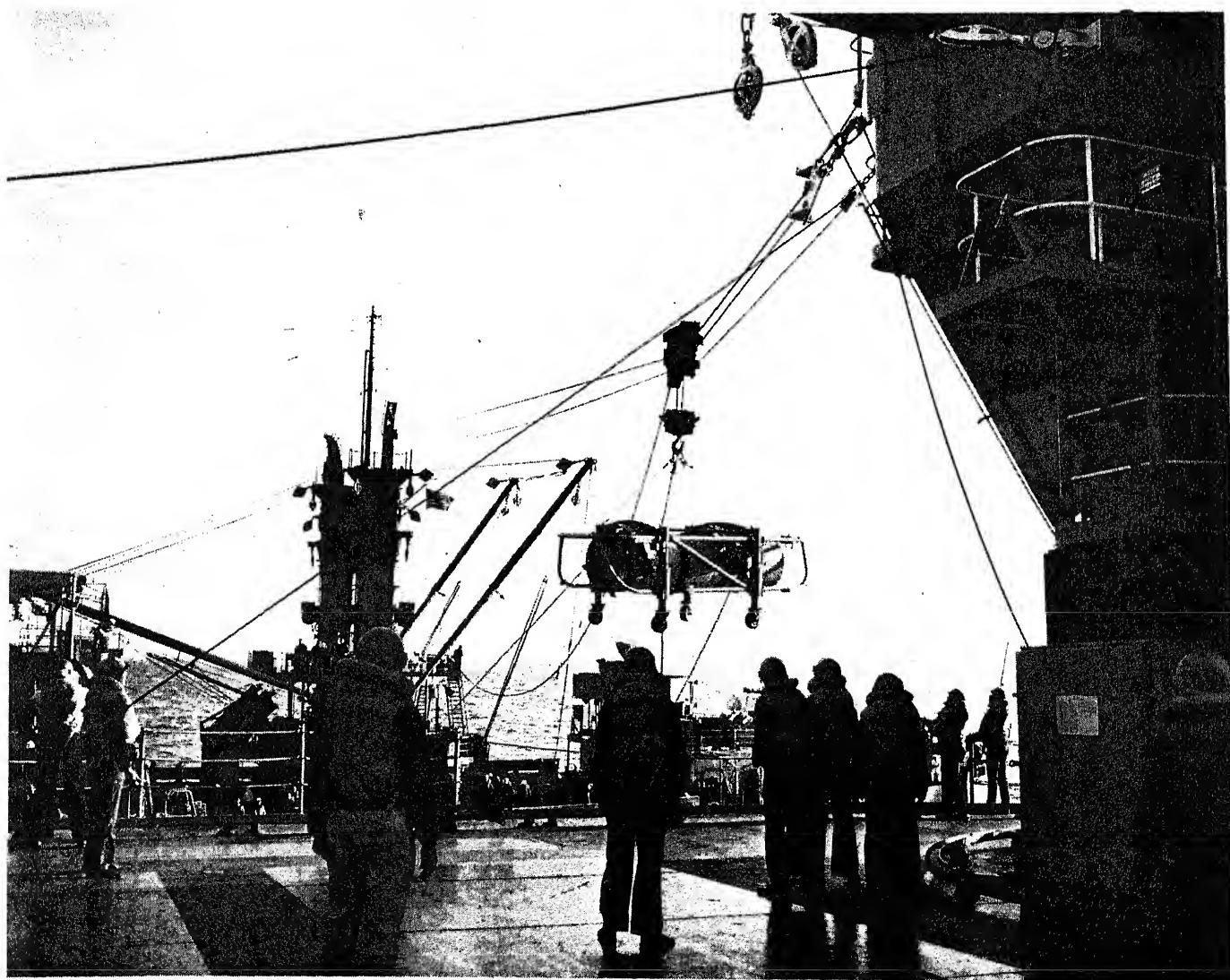
REPLENISHMENT-AT-SEA SHIPS

Replenishment at sea is the term applied to the transfer of fuel, munitions, supplies, and personnel from one vessel to another while ships are under way. During World War II, replenishment at sea (fig. 12-30) was



134.197

Figure 12-31.—USS *Butte* (AE-27).



33.199

Figure 12-32.—An AE highlines a missile to a guided-missile ship during replenishment at sea.

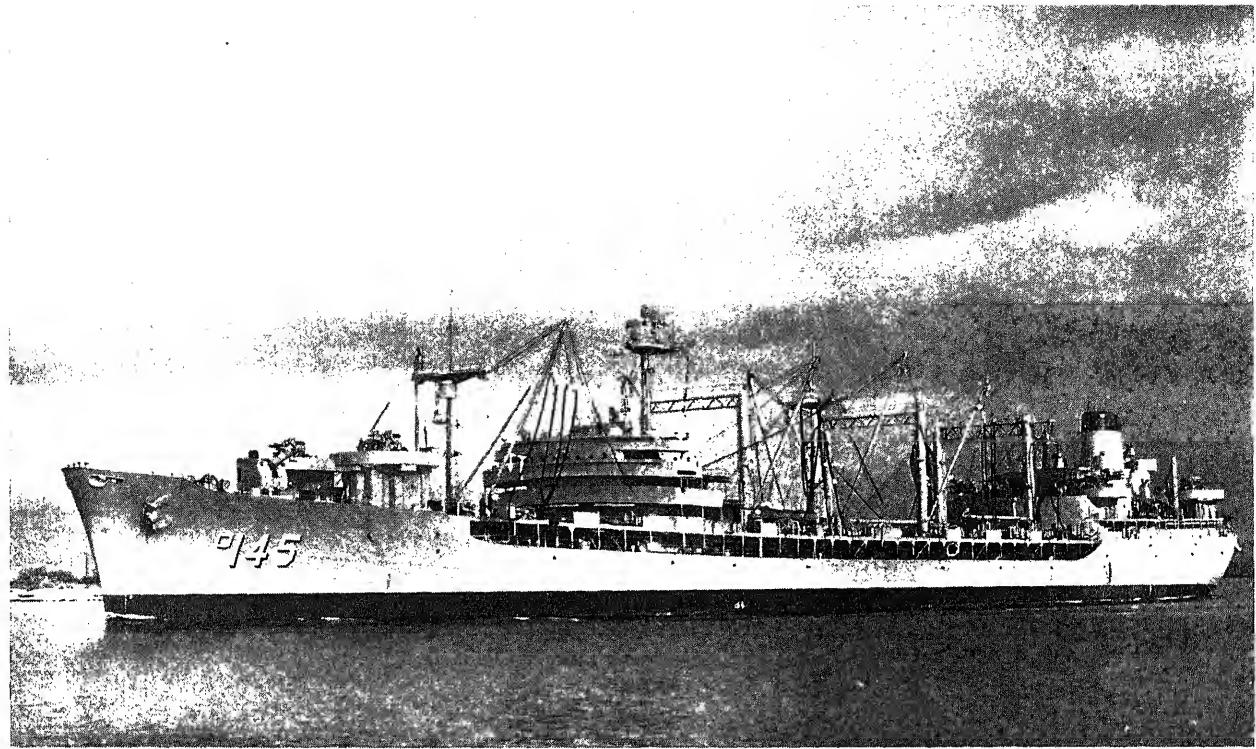


Figure 12-33.—USNS *Hassayampa* (T-AO 145), an MSC oiler.

134.157

developed to a fine art of seamanship, which today is taken as a matter of course.

Replenishment is accomplished with both the replenishment ship and the ship(s) being replenished steaming side by side on parallel courses at a predetermined speed. In most cases, the replenishment ship maintains its course and speed while the other ship(s) maneuver(s) into position alongside. A separation of about 100 feet is maintained between ships, with the replenishing ship frequently serving ships both to port and starboard. Messenger lines are passed to the receiving ships, which send back telephone and distance measuring lines and then haul over cargo-handling gear or fuel hoses by means of the messengers.

Most of the replenishment is done by ships designed for that purpose, but major combatant ships are capable of refueling smaller ships. Even the smallest ships can, and do, transfer light freight, mail, and personnel by means of highlines.

In addition to the standard replenishment capabilities, all recently constructed, as well as many of the older auxiliary, ships have helicopter platforms for the transfer of munitions, personnel, cargo, and stores by vertical replenishment. Vertical replenishment permits a receiving ship to remain on station in combat formation, thus eliminating the necessity of temporarily

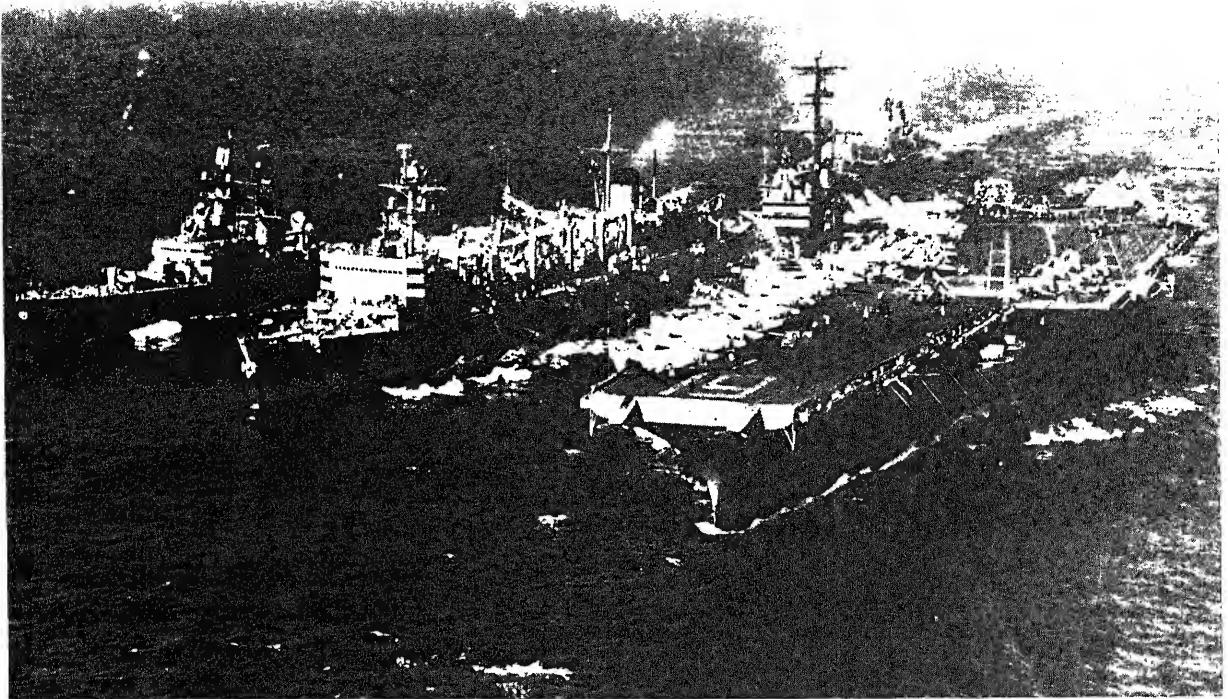
immobilizing itself by going alongside another ship for replenishment.

Ammunition Ships

Ammunition ships (AEs) (fig. 12-31) operate with replenishment groups to deliver ammunition and missiles to the fleet at sea. Their design incorporates a mechanical handling system for more rapid loading and off-loading of ammunition. The mechanical handling system includes such equipment as dual-cantilevered elevators in the holds; forklift trucks; and low-lift, power-operated transporters on the main deck for handling palletized ammunition from the elevators to the transfer stations. Universal portable metal dunnage provides maximum stowage with ready access to all types of ammunition. A tension highline system is built into the design along with new, improved electrohydraulic cargo winches for replenishment at sea. These improvements provide for much more rapid and reliable transfers and conservation of deck space. These ships are capable of handling all types of missiles (fig. 12-32).

Oilers and Tankers

Oilers (AOs), carrying Navy fuel oil, jet fuel, and other petroleum products, operate with replenishment groups and deliver their cargo to ships at sea. Oilers, as well as ammunition ships, can service ships on both sides simultaneously. USNS *Hassayampa* (T-AO 145) of the Neosho class is shown in figure 12-33.



134.198

Figure 12-34.—A multiple-product AOE conducting underway replenishment.

The AO (Jumbo) is a conversion of the AO that includes the installation of a new midsection in the hull. This midsection increases the payload and provides for an improved balance of cargo fuel products to meet the more recent demands placed upon the AO by the increase in fleet requirements for jet aircraft fuel.

Fast Combat Support Ship

The fast combat support ship (AOE) is the largest and most powerful auxiliary ship in the Navy. Unlike other replenishment ships, the AOE is designed to operate as an integral force rather than as a unit of an underway replenishment group.

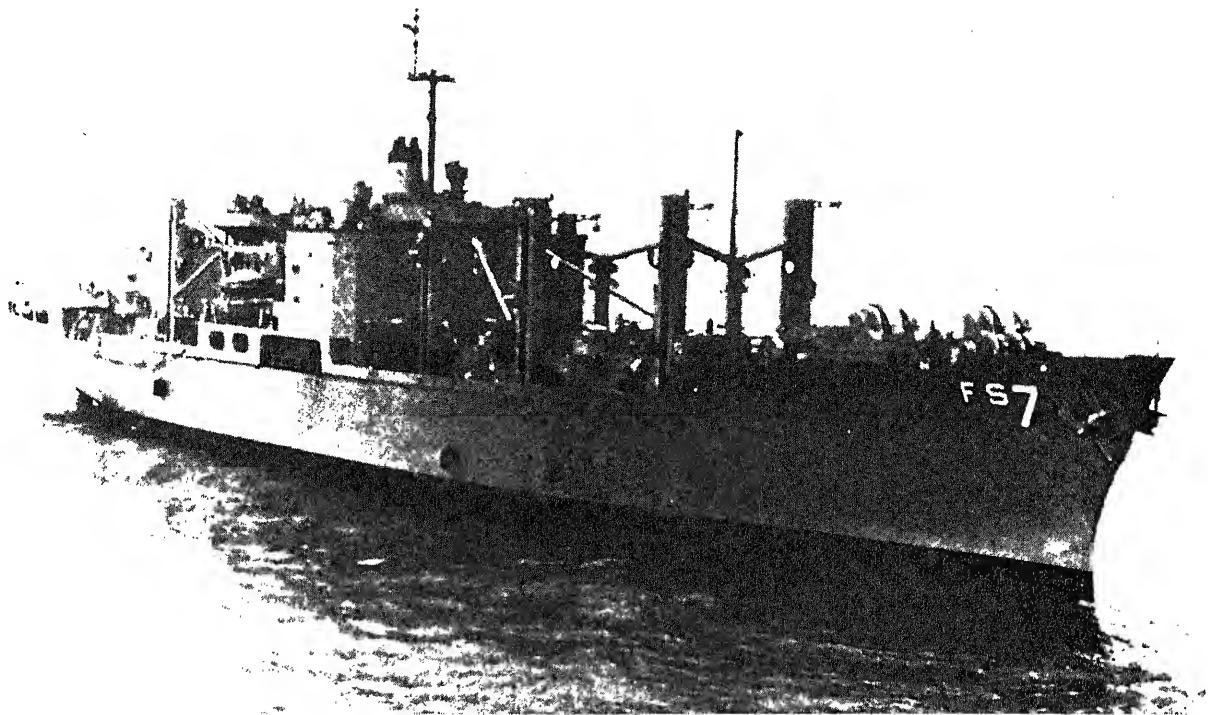
The AOE (fig. 12-34) is a multiple-product ship (missiles, fuel, ammunition, and general cargo) that has a cargo-fuel capacity greater than that of our largest fleet oilers plus a hold capacity equal to the largest ammunition ship. In addition, the ship carries a large load of both general supplies material and refrigerated cargo.

Other than speed and capacity, this ship has two major areas of improvement over other replenishment vessels: material handling and replenishment at sea.

Materials, other than missiles and special weapons, are moved vertically by elevators or conveyors. Horizontal movement of general cargo and ammunition is mechanized through the use of pallet transporters and forklift trucks. Cargo helicopters are available to replenish outlying units of the force with dry cargo and ammunition.

The missile and special weapons-handling system is separate from the cargo-handling system. This arrangement permits a continuous flow of missiles from the cargo holds to the missile-transfer system, port or starboard.

The fuel hoses on the AOE are designed to permit an average ship separation of 200 feet during replenishment instead of the normal 100 feet. The greater distance reduces the possibility of collision and makes increased replenishment speeds feasible. There are nine replenishment stations to port and six to starboard.



134.199

Figure 12-35.—USS *San Jose* (AFS-7).

Combat Stores Ship

The combat stores ship (AFS) (fig. 12-35) provides within a single hull the triple logistics capability of a stores issues ship, a refrigerator ship, and an aviation supply ship.

The AFS is designed for high-speed replenishment-at-sea separations up to 200 feet. Built-in materials-handling equipment, consisting of elevators, vertical tray lift conveyors, and pallet conveyors, provide for the rapid break out of cargo. Forklift trucks and pallet trucks are used to move cargo from storage compartments to the replenishment stations.

In addition to the conventional replenishment rigging, constant-tension highline transfer systems (fig. 12-32) are available at all transfer stations. Large free deck areas provide space for pre-positioning loads destined for receiving ships.

A helicopter platform and hangar for launching and servicing two helicopters add the capability of vertical replenishment.

MATERIAL SUPPORT SHIPS

Material support ships include repair ships and tenders.

Repair Ships

Repair ships (ARs) perform repair and maintenance services that are beyond the capabilities of other ships' facilities or personnel. They are floating shops with skilled workers representing a wide variety of mechanical and electrical trades. Many delicate optical and navigational instruments can be repaired or parts supplied and installed. Underwater cutting and welding can be performed, engine and hull repairs can be performed, and machine work and electrical and electronic repairs can be accomplished. There are foundries, forges, and machine tools of many types aboard. There are instrument shops, carpentry shops, boat shops, and boat-engine shops. Medical and dental facilities are available, as are the services of laundry, tailor, and cobbler shops.

Under wartime conditions, the function of the repair ships is to operate in advanced areas to restore the fleet to fighting trim after suffering battle or other damage.

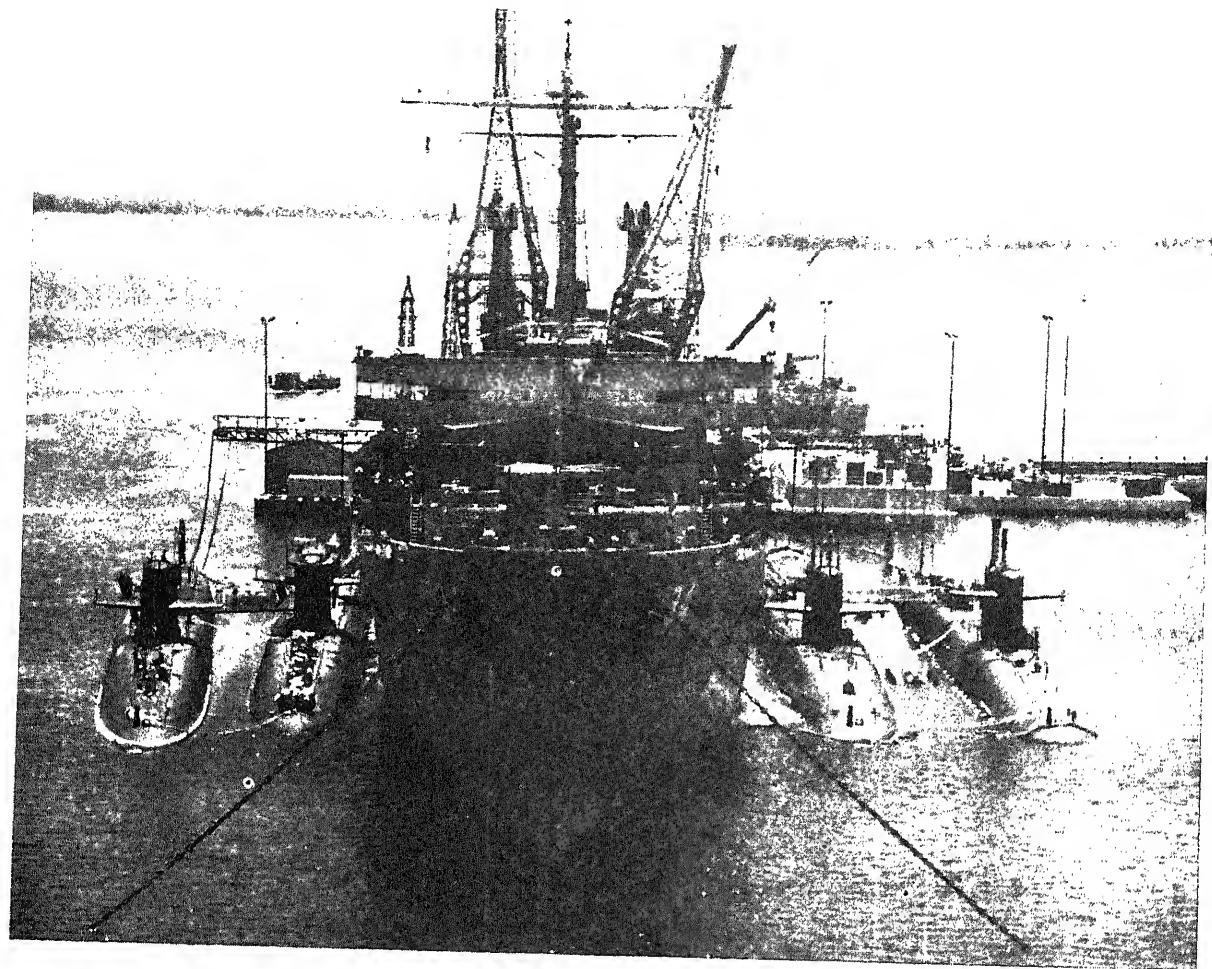


Figure 12-36.—USS *Canopus* (AS-34) servicing SSBNs alongside.

3.355

In peacetime, the function may be less apparent. The repair ships' work could be done as efficiently by a shipyard or another permanent base, but a nucleus of ships and personnel must remain ready for any emergency. In case of need, this group could be readily expanded, as was the case during World War II. The existence of the repair ships frees the yards from many smaller tasks, enabling them to concentrate on jobs requiring major resources. Repair ships serve as repair facilities when shipyards are not conveniently available and as training facilities for the crews of the ships they service, as well as the crews of their own ships.

Tenders

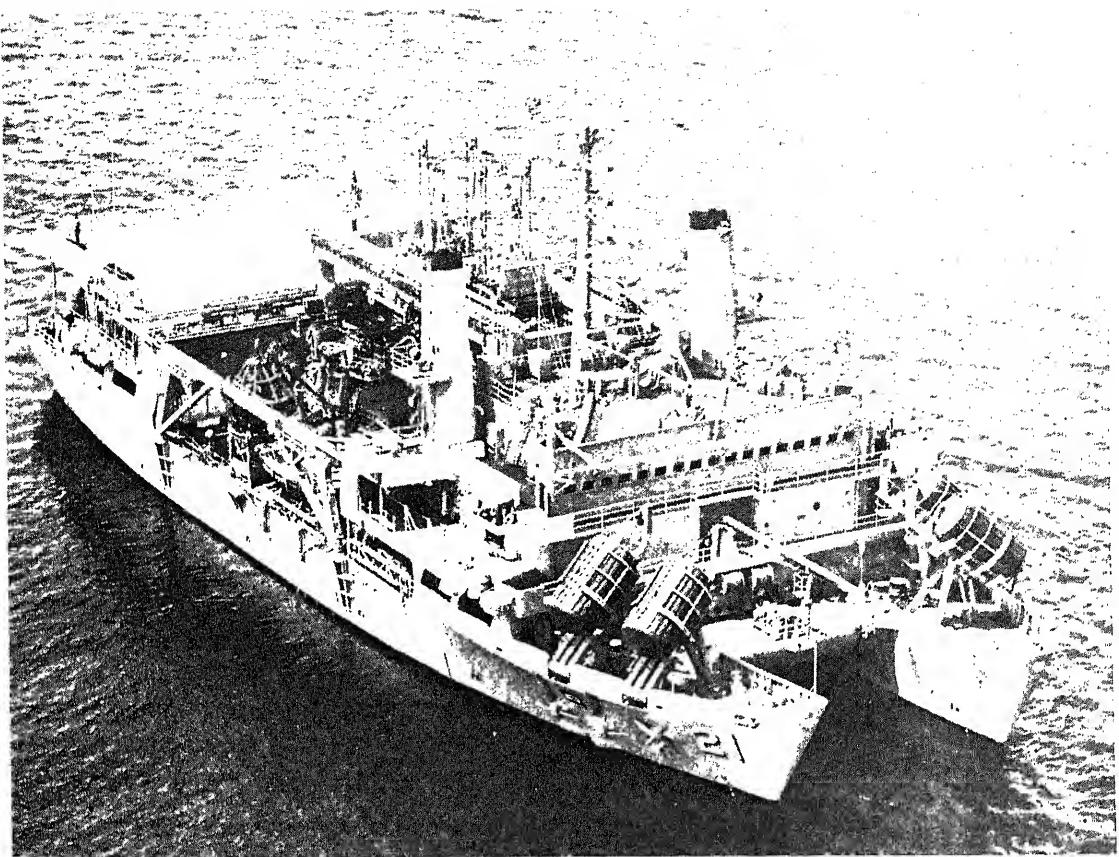
Destroyer tenders (ADs) and submarine tenders (ASs) perform repair work (although not as extensively as the AR), supply repair parts, and render other services to ships they serve. Ships may moor alongside them or send boats to request services or advice.

Like repair ships, tenders usually have a chaplain stationed aboard. Tenders provide medical and dental aid and may have recreation facilities, supply provisions, and weapons replenishment. ASs may have disbursing facilities for submarine crews.

Ballistic missile submarines are tended by repair ships specially configured for the purpose, as shown in figure 12-36.

FLEET SUPPORT SHIPS

While certain types of naval auxiliary ships are designed and equipped specifically for towing, for salvage, or for rescue operations, most of these types may, in an emergency and to a limited extent, perform all these operations. Among ships as versatile and as adaptable as the auxiliaries, there is bound to be an occasional overlapping of functions to meet an unexpected situation.



134.200

Figure 12-37.—USS *Pigeon* (ASR-21).

Salvage and Rescue Vessels

The mission of the rescue, salvage, and towing ships is to rapidly provide fire-fighting, dewatering, battle damage repair, and rescue towing assistance. These operations may be performed in combat or high-threat areas. The main objective of these ships is to remove damaged combatants from hostile areas and tow them to repair ships or bases located in safe areas. The Navy is also tasked with the responsibility for salvaging United States government-owned ships and, when in the best interest of the United States, privately owned vessels.

The Navy also employs submarine rescue ships (ASRs) (fig. 12-37). These ships were built specifically for submarine rescue. They are capable of transporting, servicing, and deploying deep submergence rescue vehicles (DSRVs). They are also capable of supporting diving operations, conventional and saturation, to a depth of 850 feet. The newer class ASRs have a unique catamaran hull design. These ships are equipped with automatic towing machines, booms, and varying amounts of fire-fighting equipment.

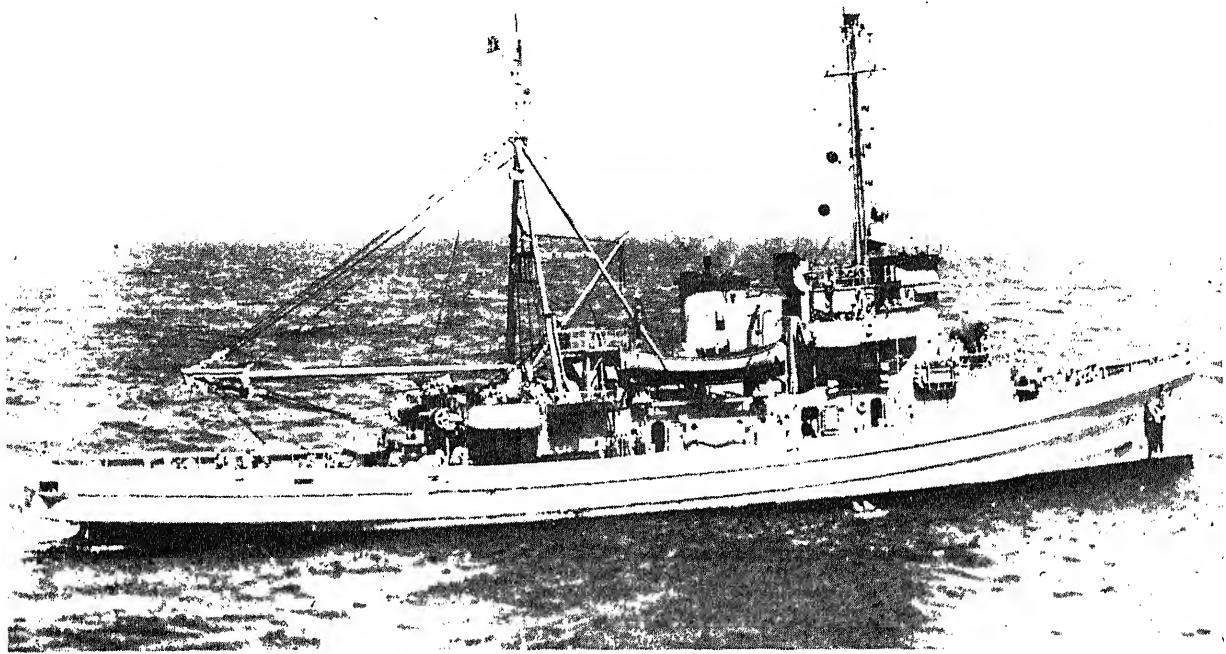
Oceangoing Tugs

There is one major type of oceangoing tug—the ATF (fleet ocean tug) (fig. 12-38). It has a large cruising radius and limited salvage capabilities. ATFs are equipped with fire-fighting equipment, including fire monitors. (A fire monitor is similar in appearance to a gun and permits water to be discharged through a horizontal arc of 360°.) They also are fitted with automatic towing machines and booms. In addition to hauling and towing, fleet tugs may be called on to patrol certain areas, lay smoke screens, and pull landing craft off beaches. They are often used in search and rescue (SAR) operations. Most fleet tugs are now operated by Military Sealift Command (MSC) personnel.

COMBATANT CRAFT

The following kinds of craft are in the combatant craft classification:

Patrol craft—Surface patrol craft intended for use relatively near the coast or in sheltered waters or rivers. These craft may be transported aboard larger units.



134.200

Figure 12-38.—Fleet ocean tug (ATF).

Amphibious warfare craft—All amphibious craft that have the organic capacity for amphibious assault principally in coastal waters. They may be transported aboard larger units.

Mine warfare craft—All craft with the primary function of mine warfare that operate in coastal waters. They may be transported aboard larger units.

SUPPORT CRAFT

Among the hardest working ships of the Navy are the support craft. Not primarily fighting ships, they are for the most part unarmed. These are ships that serve a variety of purposes in continental and overseas harbors, sea frontiers, convoys, amphibious forces, and task forces. Many are small, but of incalculable use to the Navy.

With a few exceptions, support craft designations start with the letter Y. A few of the class names will serve to show the wide variety of duties that they perform: auxiliary floating dry dock—large (AFDB) and small (AFDL); floating crane (YD); diving tender (YDT); ferryboat or launch (YFB); fuel oil barge (YO); gasoline barge (YOG); oil storage barge (YOS); floating workshop (YR); tug (YTL, YTM, or YTB); and water barge (YW).

NAVAL AIRCRAFT

The history of naval aviation goes back to 1911 when the Navy acquired its first aircraft, a pusher-type biplane with no cockpit. The only covered surfaces were the wings and tail, and flight speed was less than 50 mph. By contrast, today's high-performance planes have speeds in excess of 2,000 mph.

FIXED-WING AIRCRAFT NOMENCLATURE

A fixed-wing aircraft may be divided into three basic parts: fuselage, wings, and empennage (tail).

Fuselage

The fuselage is the main body of the aircraft, containing the cockpit and, if there is one, the cabin. On virtually all naval fighter and attack aircraft operational today, the engines and some of the fuel tanks are mounted within the fuselage.

Wings

Wings are the primary lifting devices of an aircraft, although some lift is derived from fuselage and tail. Located on the trailing (rear) edge of the wings are flaps that may be used to give extra lift on takeoff or to slow the aircraft in flight or landings; ailerons that control the roll or bank of the aircraft; and trim tabs used to

aerodynamically unload the control surfaces to relieve some of the pilot's work. On the leading (front) edge of the wing may be found auxiliary lifting devices, resembling flaps, that are used to increase camber (curvature) of the wing for added lift on takeoff. Most Navy jet aircraft carry their bomb loads on pylons (called stations) under the wings and, in some cases, under the fuselage. Some jets have missile stations on the sides of the fuselage. In the wings are located fuel cells; additional external tanks can be fitted for extra range. Larger jets may have their engines slung beneath the wings in pods. Some low-wing aircraft have their main landing gear retract into the wings, while the nosewheel retracts into the fuselage. On most high-wing aircraft, such as the A-7 Corsair II, all gear retracts into the fuselage.

Empennage

The empennage consists of the stabilizing fins mounted on the tail section of the fuselage. These include the vertical stabilizer upon which is generally mounted the rudder that is used to control yaw, or direction of the nose about the vertical axis; and the horizontal stabilizer, on the trailing edge of which are the elevators that determine the pitch (climb or dive). Some supersonic aircraft may have a full delta wing. In that case, there is no horizontal stabilizer and the elevators and ailerons are combined into control surfaces called elevons.

In aircraft with internally mounted jet engines, exhausts normally are in the tail. High-performance jets have afterburners that give additional thrust at the cost of greatly increased fuel consumption.

Rudder, ailerons, and elevators are collectively grouped as control surfaces. These surfaces are controlled by the "stick" or a similar device in the cockpit, while the rudder is controlled by foot pedals. On high-performance aircraft, aerodynamic pressures on these surfaces become too great for a pilot to overcome manually; hence, all high-speed models today have power-assisted controls.

ROTARY-WING AIRCRAFT NOMENCLATURE

The aerodynamics of rotary-wing aircraft are considerably more complex than those of fixed-wing aircraft. A helicopter essentially consists of a fuselage, main rotor or rotors, and often a tail rotor.

Fuselage

The fuselage, as in fixed-wing craft, contains the cockpit and cabin.

Main Rotor

The main rotor is the approximate equivalent of the wing of a fixed-wing aircraft. Each rotor blade is an airfoil, like a wing, and the lift is generated by the rotation of the assembly, which creates a flow of air over the blades.

A helicopter is lifted into the air by the aerodynamic forces on the rotor and not pushed up by the downwash. Some helicopters have twin rotors in tandem at either end of the fuselage; but most have a single, main rotor with a tail rotor mounted at right angles. A few have tandem intermeshing rotors.

Tail Rotor

The tail rotor is used for directional control and stability. It is mounted at right angles to the main rotor to counteract the torque of that system. By varying the pitch of the tail rotor blades, the pilot controls yaw.

Helicopter engines are connected to the rotor shaft(s) by a transmission, which may be disengaged. That permits the engine(s) to be operated on the ground without engaging the rotor system and also permits a mode of flight known as autorotation. If the engines should stop while in flight, they can be disengaged; the freewheeling action of the rotor will allow a slower descent.

AIRCRAFT MODEL DESIGNATIONS

All aircraft have triservice designations; a given aircraft bears the same alphanumeric identification symbol regardless of whether the craft is used by the Navy, Army, or Air Force.

Each basic designator consists of a letter and a number. The letter specifies the basic mission of the aircraft as follows:

A-Attack	R-Reconnaissance
B-Bomber	S-Antisubmarine
C-Cargo/transport	T-Trainer
E-Special electronic installation	U-Utility
F-Fighter	V-VTOL or STOL (vertical or short takeoff and landing capability)
H-Helicopter	X-Research
K-Tanker	
O-Observation	
P-Patrol	

The number (which may consist of one, two, or three digits) indicates the design number of the type of aircraft. The designator A-7 shows an aircraft to be the seventh attack design (fig. 12-39). If a particular design is modified, the design number is followed by another letter (A, B, C, and so on), the alphabetical order of which identifies the number of the modification. For example, the second A in A-6A tells us that the original design of this attack plane has been modified one time.

When an aircraft is modified from its original mission, a mission modification letter precedes the basic mission symbol. The mission modification letters are as follows:

A–Attack	M–Missile carrier
C–Cargo/transport	Q–Drone
D–Director (for control of drones)	R–Reconnaissance
E–Special electronic installation	S–Antisubmarine
H–Search and rescue	T–Trainer
K–Tanker	U–Utility
L–Cold weather	V–Staff
	W–Weather

Other letters that infrequently appear before a basic mission or mission modification letter are "special use" symbols that indicate the special status of an aircraft. Currently, there are six special-use symbols:

- G–Permanently grounded (for ground training)
- J–Special test, temporary (when tests are complete, the craft will be restored to its original design)
- N–Special test, permanent
- X–Experimental stage of development
- Y–Prototype (for design testing)
- Z–In early stages of planning or development

CURRENT NAVY AIRCRAFT

This section briefly describes some of the aircraft currently operational within the Navy. Representative types are shown in figure 12-39.

Attack Class

Attack planes are used for low-level bombing, ground support, or nuclear strikes. They do not need the speed of fighters, but should be capable of heavy

payloads, have good stability, and be able to carry enough fuel to remain on station long enough to render extended support to troops, if needed. Attack aircraft normally operate under conditions of good visibility, but the A-6 has the equipment needed for all-weather and night attacks.

A-7 CORSAIR II.—The Corsair II is a single-seat, lightweight, carrier-based, single-engine aircraft. The A-7 is used primarily for attack purposes, but is also used as an in-flight refueling tanker. It is equipped with the latest electronic navigation, target identification, weapons delivery, and communications equipment. The wings are placed midway back and high on the fuselage with moderate sweepback. The air inlet for the engine is on the underside of the nose with the cockpit canopy above it. The aft fuselage appears fat and the vertical stabilizer large. The A-7 has folding wing tips for closer parking aboard aircraft carriers.

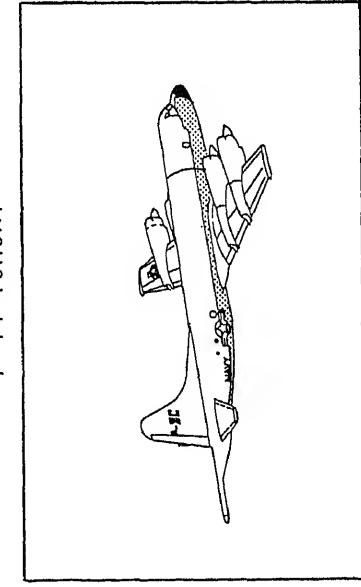
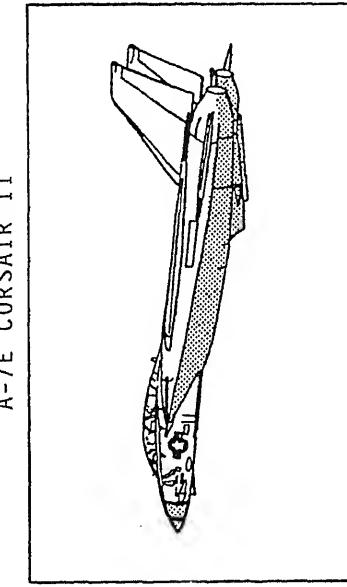
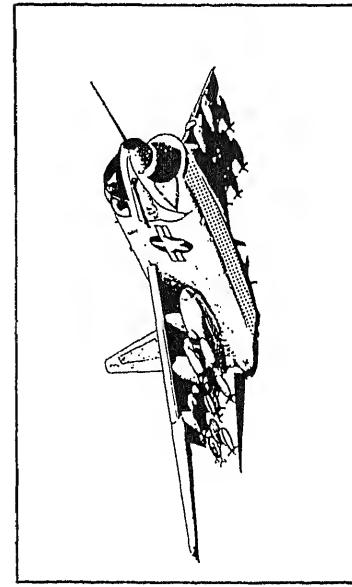
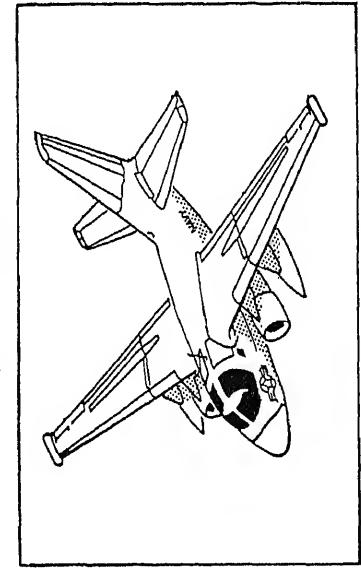
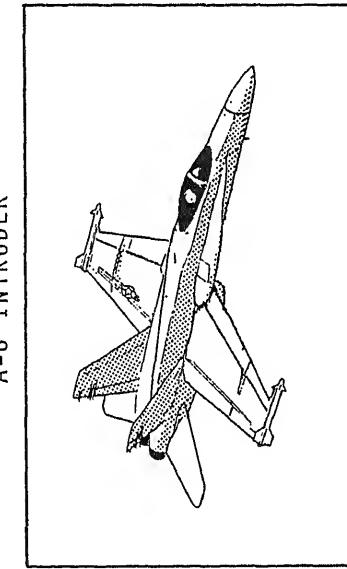
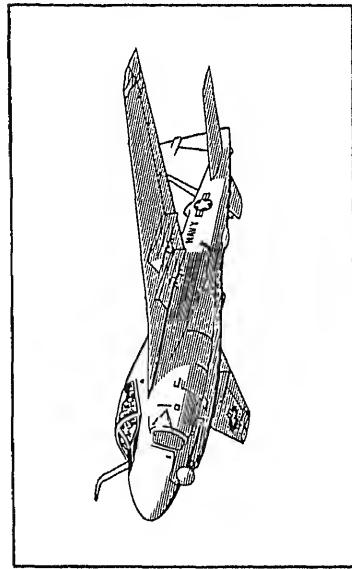
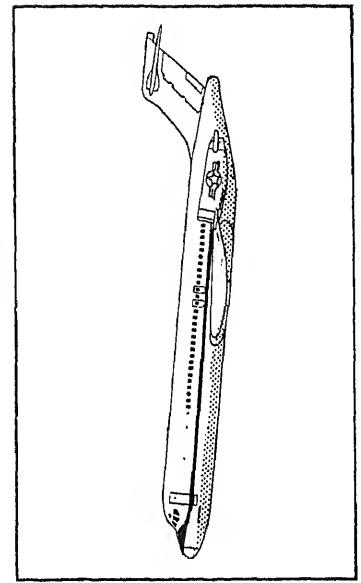
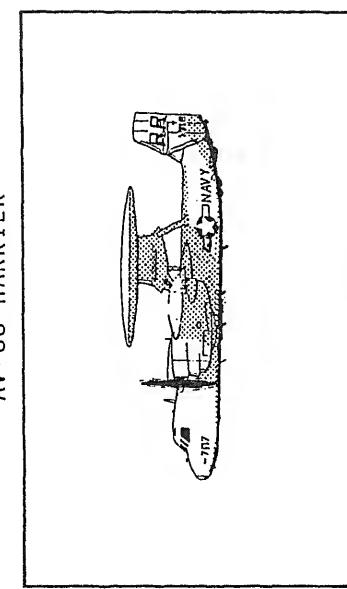
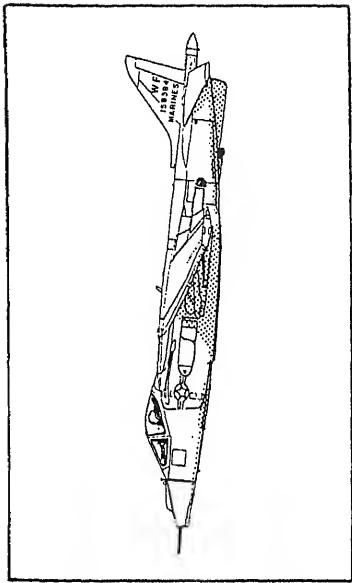
A-6 INTRUDER.—The Intruder is an all-weather attack aircraft. Fitted with complex and sophisticated electronic gear, the A-6 has, among other things, a radar that can be set to fly automatically over any terrain, an inertial guidance system that operates independently of any external navigational aids, and an automated landing system. The pilot and bombardier-navigator sit side by side.

EA-6B PROWLER.—The Prowler is an all-weather tactical electronic warfare aircraft, based on the A-6 airframe. The Prowler provides jamming coverage to prevent missile engagement of U.S. or allied aircraft during strike operations. The Prowler also carries the high-speed antiradiation missile (HARM).

AV-8B HARRIER.—The Harrier is the western world's only operational fixed-wing vertical short takeoff or landing (V/STOL) strike aircraft. It is an integrated V/STOL weapons system incorporating the inertial navigation and attack system (INAS) with an electronic display. The aircraft is used by the Marine Corps and is operated from the decks of aircraft carriers and amphibious support ships.

Fighter Class

Fighters are high-performance aircraft generally employed to gain air superiority. They may be deployed defensively as interceptors, offensively as escorts for bombers or on-ground support missions, or independently to counter enemy aircraft. Some are capable of carrying sufficient payloads for collateral bombing missions.



C - 9 SKYTRAIN

S - 3 VIKING

P - 3 ORION

Figure 12-39.—Representative types of fixed-wing naval aircraft.

F-14 TOMCAT.—The F-14 Tomcat is a high-speed, aircraft-carrier-based, jet-powered fighter aircraft. The aircraft is mainly missile oriented, carrying the new air-to-air missile, Phoenix, and capable of carrying the older Sidewinder and Sparrow. The Tomcat can be configured for bombing and rocketry.

F/A-18 HORNET.—The Hornet is a supersonic, single-seat, twin-engine jet. The fighter and attack versions are identical, except for selected interchangeable external equipment. Conversion from the fighter to attack mode (and vice versa) takes less than 1 hour. The aircraft is designed for aerodynamic agility, high reliability, high survivability, and reduced manpower maintenance requirements.

Patrol Class

Patrol craft are land-based, long-range, multiengine aircraft used primarily for ASW patrol. Patrol squadrons operate from the continental United States and overseas bases. The last seaplane squadron was retired in 1967. The P-3 Orion is the Navy's primary ASW patrol aircraft.

The P-3 Orion is equipped with magnetic anomaly detection (MAD) gear, sonobuoys, radar, and other submarine detection systems and is armed with torpedoes, bombs, missiles, and depth charges for kills. It has the primary mission of detecting, locating, and destroying enemy submarines. The P-3 can respond quickly to hunt down submarine contacts long before surface units can arrive. Other duties include convoy escort, certain photographic missions, and aerial mining.

Antisubmarine Class

Antisubmarine aircraft operate from CVs in conjunction with hunter-killer group helicopters and surface craft. The S-3 Viking is an example of such an aircraft.

The Viking is a high-wing, jet-powered, twin-engine, carrier-based ASW aircraft. It carries surface and subsurface search equipment with integrated target-acquisition and sensor-coordinating systems that collect, interpret, and store ASW sensor data. It has direct attack capability with a variety of armament.

Warning Class

Carrier-based airborne early warning (AEW) aircraft maintain station at some distance from a task

force to provide early warning of approaching enemy aircraft and direct interceptors into attack position. For example, the E-2C Hawkeye has long-range antennas that are enclosed in a saucer-shaped, rotating disk atop the fuselage. The E-2C is equipped with the airborne tactical data system (ATDS) used in conjunction with the shipboard naval tactical data system (NTDS). In figure 12-39, note the E-2C's quadruple vertical stabilizers. The Hawkeye is manned by a crew of five.

Rotary-Winged Aircraft

Since World War II, the helicopter has become an indispensable part of naval warfare. Its applications seem limitless—ASW; pilot rescue; transfer of supplies, mail, and personnel within dispersed forces; amphibious warfare; evacuation of wounded; counterinsurgency; minesweeping; and others. Representative types are shown in figure 12-40.

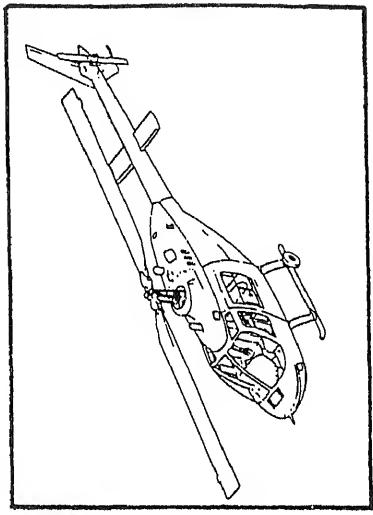
CH-46 SEA KNIGHT.—The Sea Knight is a twin-turbine transport helicopter that provides the fleet with a day/night underway replenishment capability. It is used primarily for supply missions at sea and for casualty evacuation. Its carrying capacity is 25 troops, 15 litters and attendants, or 4,000 pounds of cargo. Rotor blades fold for shipboard use. The CH-46 is a small version of the Army's Chinook.

SH-3 SEA KING.—The SH-3 is a twin-turbine, all-weather helicopter designed for ASW use. It carries dipping sonar, torpedoes, and depth bombs. It uses a special radar altimeter that automatically maintains altitude while dipping. The two turbines are mounted side by side on one rotor instead of in tandem as on the CH-46.

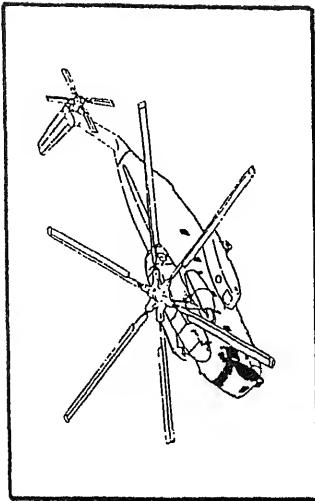
SH-2 SEASPRITE.—The Seasprite, an ex-utility helicopter, is now serving in the LAMPS (light airborne multipurpose system) program with the destroyer Navy.

RH-53D SEA STALLION.—The Sea Stallion tows and operates various mine countermeasure devices designed to detect and neutralize submerged naval mines. RH-53D squadrons are capable of rapid worldwide deployment.

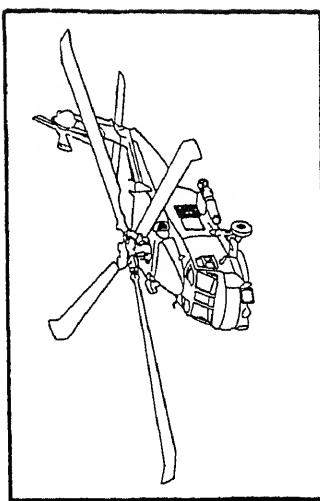
SH-60B SEAHAWK.—The Seahawk SH-60B is placed aboard frigates and destroyers. The Seahawk is the airborne platform segment of the LAMPS Mk III weapons system. It can carry personnel as well as weapons to detect, localize, and destroy submarines at long range. It is designed to be in constant voice and data link contact with the ship's CIC. In addition to its primary mission of seeking and engaging submarines



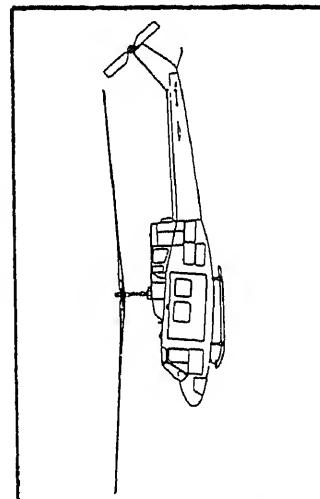
UH - 1N TWIN ENGINE HUEY



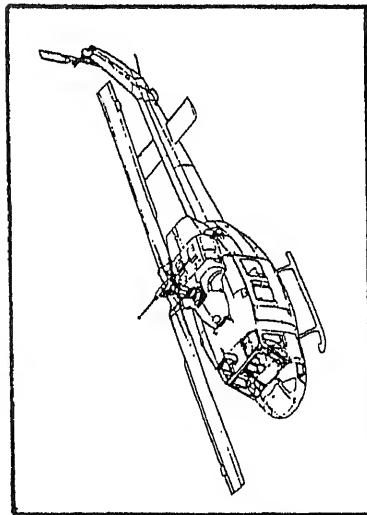
TH - 57B / C SEA RANGER



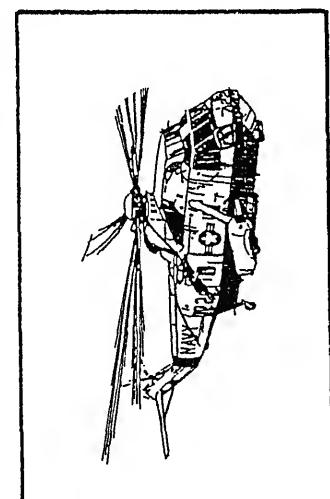
CH - 53D SEA STALLION



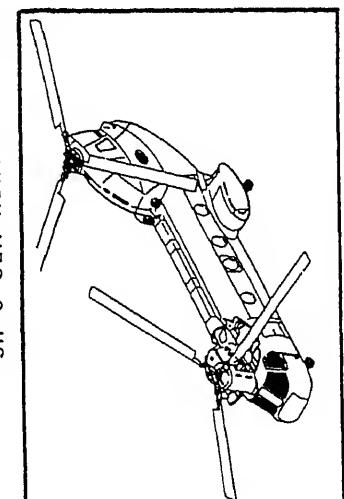
SH - 60B SEA HAWK



TH - 1L HUEY



SH - 3 SEA KING



CH - 46 SEA KNIGHT

Figure 12-40.—Representative types of naval helicopters.

many miles from the ship, the Seahawk helicopter is able to provide targeting information for over-the-horizon, surface-to-surface missiles. The secondary mission of the Seahawk helicopter is search and rescue, medical evacuation, vertical replenishment, and communications relay.

SUMMARY

In today's world, the United States requires military power adequate to strengthen national security objectives. The United States Navy is an integral component of this nation's military forces. Freedom of the seas is not a gift; it must be won through naval presence or engagements. Naval forces provide our nation with the ability to provide a significant presence in crisis areas, or, if required, a rapid offensive capability.

The United States Navy has the ability to control enemy naval forces in three areas: air, surface, and subsurface. It can also conduct amphibious and mine warfare operations.

One of the most important aspects of naval warfare is the ability to provide supply and support operations. With the Navy's wide range of underway replenishment and repair ships, we can keep U.S. Navy battle groups under way in crisis areas for long periods of time. The most recent example of this ability is the Persian Gulf War. Today's Navy consists of a new generation of cruisers, destroyers, fighter and strike aircraft, high-speed amphibious assault ships, mine countermeasures ships, replenishment ships, submarines, and weapons systems. With these craft, vessels, and weapons systems, our nation employs the most modern and capable naval force in existence.

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CHAPTER 13

SAFETY

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Recognize your personal responsibilities concerning safety.
2. Describe the safety rules used when embarked in small boats.
3. Explain the safety precautions required when working with or around steam.
4. List the safety requirements when working with or around lifelines, ladders, and scaffolding.
5. Describe the safety precautions required when moving equipment or heavy weights, or working with or around suspended loads.
6. Describe the safety precautions required for personnel working over the side or aloft.
7. Explain the safety requirements when working in or around voids, tanks, or closed compartments.
8. Describe the safety precautions required when working on or around antennas.
9. Describe the safety precautions used when working with or around flammable liquids.
10. State the safety requirements when working with or around paints or solvents.
11. Define the safety precautions required when working with or around weapons, ammunition, and pyrotechnics.
12. Explain the safety precautions required when working with or around electrical and electronic equipment.
13. Describe the dangers of energizing or using electrical equipment in spaces containing explosive vapors.
14. Describe the safety precautions required when working with or around compressed air and gases.
15. Identify the safety rules required when working with or around asbestos and fiber glass.
16. Describe the safety precautions required when using or working around power tools.
17. Describe the safety requirements when working around cutting or welding operations.
18. Define the safety precautions required when working with or around liquids under pressure.
19. Describe the safety precautions required when working around rotating machinery.
20. Describe the safety precautions required when working with or around caustic liquids.
21. Describe the safety precautions required and the health hazards associated with working in or around marine sanitation systems.
22. Describe the safety requirements when working in or around high noise level areas.
23. Identify the safety equipment and precautions required when participating in sporting events.
24. Recognize the required safety precautions when operating motor vehicles.
25. Describe the safety procedures used when lifting objects.
26. Recognize the various signs, labels, and symbols used to identify hazardous material.
27. Describe the procedures used to report safety hazards and violations.
28. Explain the use and maintenance of personal protective equipment.
29. Explain the purpose of the Navy tag-out system.
30. Explain the safety requirements when working in or around shipyards and dry docks.
31. Identify aircraft heat and cold stress area safety precautions.
32. Explain the safety precautions required when working in heat and cold stress areas.

Naval warships are inherently dangerous. Crowded living conditions, confined working spaces, long hours, often at night, are just a few reasons why we must use caution at all times when on board ship. Some of our evolutions, such as underway replenishment, conducting flight operations, testing weapons systems, or just a change in weather conditions, greatly increase the dangers of being at sea. All Navy ships have a comprehensive shipboard safety program. This program was developed over many years to make our way of life at sea safe. This program is designed following established procedures in conducting our day-to-day business aboard ship and places special emphasis on observing certain precautions. The safety program also stresses constant awareness of the hazards associated with being at sea. The word *mishap* is often used in referring to an incident that *just happened*. Mishaps do not just happen; they are caused. Most of the mishaps that are reported could have been prevented if the individuals involved had followed established procedures and heeded the appropriate safety precautions. Most of the precautions discussed here are from a shipboard viewpoint, but many of them also apply ashore. Do not depend on your memory when applying safety precautions. Almost every task we perform has safety precautions that must be followed when performing it. Get the operator's manual, planned maintenance system (PMS) card, or technical manual and read these precautions. If you do not understand them, or cannot find them, ask your supervisor for help. The few minutes you take to read and understand these safety precautions will make your job safer. Don't be one of the casualties reported during a mishap. It's better to be safe than hurt or possibly worse—DEAD.

PERSONAL RESPONSIBILITY

Your personal responsibilities for safety are as follows:

1. Observe all safety precautions related to your work or duties.
2. Report unsafe conditions. Do not walk around a ladder well with missing safety chains and forget it. Report it! If you use a piece of equipment that is damaged, report it!
3. Warn others of hazards. If you see someone knowingly, or unknowingly, placing themselves or others in danger, say something. If that particular person will not listen, tell your supervisor.

4. Protective equipment and clothing is issued to you for a purpose—use them. It's hard to explain to

chief that you had to go to sick bay to get something removed from your eye when you were given a full face shield before you started working.

5. If you should become injured or feel sick, tell your supervisor. A little scratch could become infected or your illness could be a sign of something more serious. A little time having the corpsman check you now is better than being in the hospital later.

6. Remain alert. Look for any possibilities of danger. Be safety conscious.

7. Don't rush into a job. Look at what you are supposed to do. Is the equipment you have suited to the job? Check the safety precautions for the equipment you were issued. Is the equipment in good condition?

THE SHIPBOARD ENVIRONMENT

A shipboard environment introduces factors affecting safety that are not found ashore. Danger exists in every naval operation and aboard every naval vessel. Going to sea involves working with powerful machinery; high-speed equipment; high-temperature, high-pressure steam; volatile and exotic fuels and propellants; heavy lifts; high explosives; stepped-up electrical voltages; and the unpredictable forces of wind and waves.

Underway refueling, multiship exercises, storms, and other situations require personnel at sea to be constantly alert. A mishap (there's that word again) at sea can involve all hands in a matter of seconds. Every person, therefore, must be continually alert to hazardous conditions. If you observe unsafe practices or conditions, report them to your supervisors.

SAFETY PRECAUTIONS AND HAZARDS

The safety precautions and hazards discussed are of a general nature only. They should be sufficient for you to avoid injury to yourself and others and to prevent loss of or damage to equipment.

BOAT SAFETY

The major concern of Navy personnel aboard small boats is their safety as passengers. Therefore, this section is written especially for passengers, rather than for crew members.

Every sailor should be thoroughly familiar with boat safety precautions. When you are on or boarding a boat, you should observe the following precautions:

1. Obey all orders from the coxswain.
2. Embark in a quiet, orderly manner and move as far forward as possible. Once embarked, stay in place.
3. Keep all parts of your body in the boat; do not sit on gunwales.
4. Do not engage in horseplay.
5. Never distract the attention of crew members from their duties.
6. Do not sit on life jackets; this will mat the filler and reduce buoyancy.
7. When told to do so, don your life jacket immediately.
8. Do not smoke in a boat.
9. If told not to embark or disembark, do so without argument. During heavy weather, boat loads will be reduced.
10. If a boat swamps or capsizes, do not panic. Fear can spread quickly from person to person. A terrified person drowns easily. Stay with the boat or huddle with other passengers. A large group can be found much easier than individual swimmers.

DECK SAFETY

Weather decks of ships at sea can be extremely hazardous, particularly aboard small ships. The ship may be level one minute and take a sharp roll the next. At any moment a large wave could submerge the main deck to a depth of several feet, or a wave could come unexpectedly over the fantail.

Vigilance is always a necessity aboard ship, but in foul weather you must be even more alert. If your duties do not require your presence on the main deck, do not go there. Use interior passageways or superstructure decks for moving fore and aft. When you must be on the main deck in foul weather, wear your life jacket. You must always wear an inherently buoyant life jacket whenever you are handling lines or are otherwise involved in underway replenishment or transfer operations.

A ship's deck has many tripping hazards, such as cleats, bitts, and pad eyes, as well as larger obstacles, such as boat davits and winches. Learn their locations so that if you must go on deck at night, you will have a better chance of avoiding these hazards.

Do not sit or lean on lifelines. When the sea is unusually rough, a safety line may be rigged on the main deck. When you are moving along the deck, you should stay inboard of, and hold on to, the safety line.

The flight decks of aircraft carriers are particularly hazardous areas. "Beware of propellers" is a long-standing safety precaution. Propellers often are invisible because of the speed at which they rotate, and they can act just like a meat slicer; so use extreme care when walking or working near propeller-driven aircraft.

Jet planes present a dual hazard. A person can be sucked into the jet's intake, be burned, or be blown overboard (or against an object) by its exhaust. Keep off the flight deck if you do not work there. If you do work there, always wear your ear protectors when jet engines are running. Because of minimum lighting requirements, nighttime is especially hazardous on the flight deck. Again, if you have no business there, keep off the flight deck. One other caution: Smoking is prohibited on the flight and hangar decks and in all fuel- and ammunition-handling spaces.

In general, the same rules apply to ships operating helicopters. Only authorized personnel are permitted in the landing area during helicopter operations. Those personnel must wear proper protective clothing and equipment. During vertical replenishment operations, keep out from under loads and stay clear of the unloading area until the helicopter has departed. Keep the landing area free of all loose objects that may be whirled about by the downwash from the rotor blades.

The flight deck of an aircraft carrier during flight quarters is a highly dangerous area. This deck, combined with the hangar deck, magazines, and shops, provides the equivalent operating facilities of a large airfield. The hazards associated with aircraft operations are focused, however, into a relatively small area. Therefore, personnel are exposed to a greater potential of danger.

STEAM

Most accidents involving steam occur in engine rooms and firerooms, but steam lines run throughout a ship; therefore, proper precautions must be observed at all times. Some practices can be applied to almost any situation regardless of the type of equipment, the steam pressure, or any other job-related condition.

Live steam is often invisible and it is always dangerous. If you are not familiar with a system or have not been trained for the task at hand, do not attempt the job.

Always drain lines before removing valves or otherwise opening the system. Close all associated valves to isolate the system to be opened, and tag these valves to ensure they remain shut while you are working on the equipment. Wear proper protective clothing. Do not try to take shortcuts and do not skylark. Carelessness has been a factor in nearly all reported mishaps involving steam. Observe all appropriate precautions.

LIFELINES, LADDERS, AND SCAFFOLDING

Lifelines, as used here, refer to lines erected around the edges of decks. They are safety barriers to prevent personnel from falling or being washed over the side. Never sit, lean, or stand on any lifeline—if the ship takes a sudden roll while you are leaning against a lifeline, you could fall overboard.

Never remove lifelines without permission from the proper authority. When removing a lifeline, immediately rig a temporary line. Do not hang or secure any weight on a lifeline.

When working near a ladder, sailors have the bad habit of placing paint cans, buckets, or tools on the steps to minimize bending over. This practice could cause a mishap. Because water will cause a ladder to become very slippery, you should be especially careful on rainy days. Paint drippings are equally dangerous for the same reason.

Never unship (take down) a ladder without permission. Rope off all open hatches and gangways leading to unshipped ladders.

The smooth deck of a ship does not provide a good hold for scaffolding. The base of scaffolding must be properly braced and lashed down to prevent it from sliding. The use of makeshift scaffolds is prohibited. Scaffolds must be erected only when needed to do a job and dismantled as soon as the job is completed.

You should not work on a scaffold in high winds or when the scaffold is covered with ice or snow. Never throw or drop objects from a scaffold; use handlines for raising or lowering objects. Do not paint scaffolds, because the paint might conceal defects. Use lifelines and safety belts when working on a boatswain's chair or on unguarded scaffolds above a height of 10 feet.

HANDLING CARGO

Serious, sometimes long-lasting injuries can result from the improper handling of heavy objects and from the failure to observe basic safety precautions. The

following list contains precautions you should observe to prevent injury to yourself or to others and to prevent damage to cargo and equipment:

1. When lifting a heavy or bulky object, crouch close to the load, with feet solidly placed and slightly spread. Get a good grip on the object and lift with your arm and leg muscles, keeping your back as nearly vertical as possible. If the load is bulky or heavy, do not feel embarrassed to ask for help.
2. Do not throw articles from elevated places; lower them by a line or carry them.
3. Wear appropriate safety clothing and equipment, such as safety shoes, a hard hat, gloves, and a life preserver, for the job at hand. Remove rings, wristwatches, and bracelets when handling cargo.
4. Stow hatch covers and strongbacks in such a manner that they will not interfere with traffic or be knocked into the hatch or over the side.
5. When steadying loads, do not stand between the load and a fixed object. Do not stand under a suspended load. Never ride loads. Use the nonworking side of a ship for fore-and-aft travel.
6. Never stand in the bight of a line. Keep clear of lines under a strain. A line (particularly nylon) can part with a whiplike snapback, which can cause severe bruises, broken bones, amputations, or even death.
7. Do not engage in horseplay.
8. When going up or down a ramp with a hand truck, keep the load below you. Thus, you pull the load up and push it down.

WORKING ALOFT OR OVER THE SIDE

Before any work may be done aloft, permission must be obtained from the officer of the deck (OOD). Before granting permission, the OOD will ensure that all power on appropriate radio and radar antennas is secured and that controls associated with the antennas are tagged "SECURED. PERSONNEL ALOFT." The OOD will also notify the engineer officer where the personnel will be working so that the necessary precautions can be taken to prevent such operations as the lifting of boiler safety valves or the blowing of tubes. After the work has been completed, a report is made to the OOD, who, in turn, will notify the appropriate officers.

When you are working aloft, wear a standard Navy-approved safety harness with a safety line attached. Radio and radar transmissions, even from

another ship, can induce a charge in guy wires, stays, ladders, and other metal fittings. If you touch one, you may receive a shock. The shock itself may not be dangerous, but a natural reaction when shocked is to jerk away. Without a safety harness you could easily fall.

Secure all tools and equipment with lanyards to prevent dropping them and injuring personnel below. Burning and welding or the presence of any open flame is not permitted on a stage or boatswain's chair unless the suspension ropes and bridle are made of steel. Always check equipment for weakened or broken fittings before going aloft.

When working over the side, you must wear a standard Navy safety harness with a safety line attached and tended by someone on deck. You must also wear an inherently buoyant life jacket with a hole in the back. The hole in the life jacket will allow you to wear a safety harness. The line should be only long enough to permit freedom of movement.

A life jacket must also be worn when you are working at underway replenishment stations, when you are in a lifeboat at sea, when you are working on weather decks during heavy weather, or whenever you are directed to do so. While the ship is underway, you must be given permission by the commanding officer to work over the side.

CLOSED COMPARTMENTS AND UNVENTED SPACES

Closed compartments can contain unexpected dangers. In any sealed tank or compartment, especially those closed because of damage, pressure may have built up inside. Whenever possible, the seal around the manhole or other opening should be broken before all hold-down bolts or other fastenings are completely removed. This precaution will prevent the cover or door from being thrown violently against a person if there is pressure behind it. Also, this will permit the replacement of the cover if there is water or gas behind it that threatens to flood the next compartment.

All compartments must be considered dangerous if they have been closed for any length of time. If the bulkheads, deck, or overhead has rusted, they did so by absorbing oxygen from the air. This means there may not be enough oxygen left for you to breathe. If the compartment was painted before closing, the paint, in hardening, has absorbed oxygen and given off carbon monoxide. Carbon monoxide is particularly dangerous because it gives no warning. If you notice a sudden feeling of weakness, drowsiness, or a slight headache,

call for help and get to fresh air. Never enter a closed space until it is certified safe by a gas-free engineer.

In storage compartments, any of several toxic gases may be generated by mildewing or rotting foodstuffs or by materials such as cloth, leather, and wood. Mildewing and rotting are speeded up when the space is warm and humid, as when a ship is cruising in the tropics, or when an area has been flooded as a result of damage or accident.

Carbon dioxide is frequently found in refrigerator spaces even though the spaces are undamaged and the foodstuffs are still good. This condition results from lack of ventilation and the fact that foods slowly absorb oxygen and give off carbon dioxide. If personnel stay in such spaces longer than a few minutes at a time, they may be overcome and eventually suffocate.

Tanks that have held petroleum products, and compartments in which oil, gasoline, solvents, and organic products have been spilt, will contain the vapors of these products.

You must assume that any closed space, double bottom, tank, cofferdam, pontoon, or void contains gases with poisonous, suffocating, or explosive qualities. Never enter any such space until it has been thoroughly ventilated and checked by a gas-free engineer to ensure there is no danger of poisoning or suffocating or ignition of flammable gases. Always have a person stationed at the entrance to maintain communications and to watch to see that you are not overcome.

Symptoms of bad air include labored breathing, excessive fatigue from slight exertion, headaches, and dizziness. If you feel any of these symptoms, you should give warning to others and get to fresh air immediately. A more dangerous situation is when there is no, or very little, oxygen in the compartment. In this circumstance, a person can lose consciousness almost immediately without warning. If such an incident occurs and you are tending the person, do not enter the space without wearing an oxygen breathing apparatus (OBA), or you will become a casualty yourself. Always summon help before making a rescue attempt.

Another hazard connected with closed compartments or connected spaces is the use of internal combustion engines in these spaces. A good example would be using the P-250 pump for fire fighting or dewatering in one of these closed areas. These engines, which are used to drive the pump, take in the air through the carburetor and exhaust poisonous carbon monoxide. If you need to use an internal combustion engine in a

closed space, make certain the exhaust is carried to the open atmosphere.

ANTENNAS

Personnel are not permitted to go aloft in the vicinity of energized antennas. The voltages set up in a ship's structure or section of rigging by electromagnetic radiation (EMR) can cause shock or burns to personnel. Personnel of the deck force or others working on rigging must be familiar with the hazards that exist and the precautions to be observed. Safety belts will be used when working aloft to guard against falls.

The previously mentioned precautions should be observed also when other antennas in the immediate vicinity are energized by electronic transmitters, unless it is definitely known that no danger exists. Other antennas may be interpreted to mean any antennas on board another ship moored alongside or across a pier or at a nearby shore station.

Personnel aloft are in danger from falls caused by radar or other antennas that rotate or swing through horizontal or vertical arcs. Motor switches controlling the motion of radar antennas should be locked open and tagged before you go aloft to work in the vicinity of such antennas.

FLAMMABLES

Rules for preventing fuel fires will be presented in a later chapter of this manual. Our discussion here will include fire hazards and toxic hazards of flammable materials and applicable safety precautions.

The vapors of petroleum products cause anesthetic effects when inhaled. Breathing petroleum vapors having a concentration of air of only 0.1 percent by volume can result in the inability to walk straight after only 4 minutes. Longer exposure or greater concentration may cause unconsciousness or death. When lead is added to the fuel, toxicity is increased. The lead may be inhaled or it may be absorbed through the skin. Thorough ventilation, therefore, must be provided at all times when personnel are working in fuel tanks. An air-line respirator is recommended when personnel enter such spaces.

Symptoms of exposure to toxic vapors are headache, nausea, and dizziness. If you are working in a space that formerly held oil, gasoline, or other fuels and you experience these symptoms, get to fresh air at once. Recovery is usually prompt in fresh air; but if you are overcome by the vapors, you may require immediate

medical attention. First-aid measures are to prevent the victim from becoming chilled and to administer artificial ventilation if breathing has stopped.

All fuel spills must be wiped up immediately to prevent the spread of vapors to a possible ignition source. Never use gasoline for cleaning purposes, and avoid getting gasoline on the skin. Repeated contact causes drying, chapping, and cracking and may cause infection.

FUELS

The use of open flame, naked lights, or any apparatus that is likely to cause a spark is not permitted in spaces or areas where fuel is exposed or during fueling. The term *open flame* includes all forms of fuel or gas lanterns, lighted candles, matches, cigarette lighters, and so on. The term *naked lights* includes any unprotected electrical lighting device. Permanently installed electrical apparatus necessary for maintenance of power or services in the ship could produce sparks.

PAINTS

Paints, varnishes, lacquers, cleaners, solvents, or other finishing materials contain flammable solvents that can ignite at comparatively low temperatures and, therefore, present a fire hazard. They also give off toxic vapors that are harmful when inhaled. When using paints and finishing materials, you should observe the following precautions:

1. Do not smoke or use an open flame in areas where paint, varnishes, lacquers, and solvents are mixed or applied.
2. Wipe up spilled paint or solvents immediately to reduce the fire and vapor hazards.
3. Place rags or other items used for cleaning up paint in a separate container with a closed top.
4. Take care to prevent paint products from coming in contact with the eyes and skin.
5. Wear goggles when chipping and cleaning surfaces to be painted.
6. Wear gloves and a filter respirator when mixing paint and when painting.

SOLVENTS

Solvents used in paints, adhesives, rubber and plastic materials, and degreasing solutions are hazardous to your health. Most solvents are toxic and,

with a few exceptions, are flammable. Appropriate measures must be taken to reduce their toxic and flammable effects. In addition, exposure of the skin to solvents can cause serious skin problems. Therefore, you should observe the following precautions when using solvents:

1. Use adequate ventilation.
2. Wear protective clothing, goggles, gloves, and other appropriate safeguards.
3. Have readily accessible fire-fighting equipment nearby.
4. Take every precaution to prevent excessive vapors from contaminating the air.
5. Check all liquids before using. If in doubt of any cleaning fluids, consult the officer in charge.
6. Wipe up spilled solvents immediately.
7. Avoid contact with your eyes, skin, or clothing. Do not take solvents internally, and avoid breathing solvent vapors.
8. Keep solvent containers tightly closed when not in use.
9. Check containers for leakage; if a container is defective, transfer the solvent to a new container.
10. Be sure containers are empty before they are discarded. Observe approved practices for disposal of solvents and cleaners and their containers.
11. Label all containers in which solvents are to be stored.
12. Store solvents in an appropriate solvent storage locker.

WEAPONS AND EXPLOSIVES

You should observe the following general precautions when handling any type of weapon:

1. Consider every gun loaded until you examine it and find it otherwise.
2. Never point a weapon at anyone you do not intend to shoot or in a direction where an accidental discharge may do harm.
3. Place a cartridge in the chamber only when you intend to fire the weapon.

4. Whenever you handle a weapon, think about what you are doing. Accidents seldom "just happen." They frequently are caused by persons ignorant of safety precautions. All too often they are caused by carelessness.

5. Make sure the ammunition is suited to the type of weapon you intend to fire.

Ammunition is stowed aboard ship in specially constructed compartments called magazines, which are located as far as possible from firerooms and engine rooms. Each magazine is equipped with a sprinkling system, and many are equipped with a quick-flooding system, for use in an emergency to prevent explosion of the magazine. Lighting is accomplished with vaportight fixtures. Naked lights, matches, or other flame-producing apparatus must never be taken into a magazine. Heel plates or other spark-producing materials are also forbidden. Magazines must be kept scrupulously clean and dry at all times. Particular attention must be paid to ensure that no oily rags, waste, or other materials that may cause spontaneous combustion are stored in magazines.

Extreme care must be exercised when handling ammunition. Remember, the purpose of ammunition is to cause destruction. Be sure the destruction is to the enemy and not to your own ship. Figure 13-1 shows the tragic results of careless handling of ammunition—a ship was lost and over 150 persons were killed or injured.

An important aspect of ammunition handling is identification of the type of ammunition. Projectiles of 3-inch and greater diameter are color-coded to indicate the projectile type and the kind of bursting charge they contain. Armor-piercing, antiaircraft, illuminating, and chemical projectiles, to name only a few, are identified by their own distinctive color markings. Whenever you are handling ammunition, be sure you keep projectiles of the same type (same color) together.

A few additional rules are given here for handling ammunition. They are by no means all the precautions necessary. They are of a general nature and applicable to all types of ammunition.

1. When loading or unloading ammunition, do not race with other handling parties. Speed increases the possibility of a mishap.
2. Be careful not to dent cartridge cases. Dented casings may jam in the bore. Some thin-cased

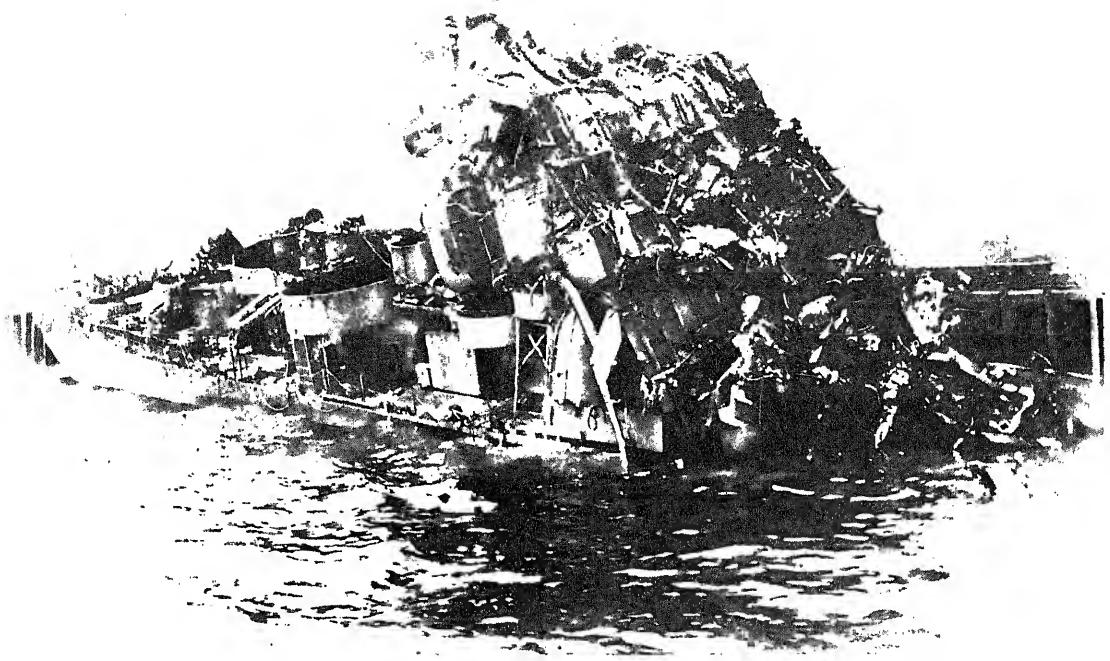


Figure 13-1.—A result of carelessness.

explosives are known to have detonated when their casings were dented.

3. Avoid obliterating identification marks.
4. Grommets are used to protect the rotating bands of projectiles; do not lose the grommets.
5. Do not smoke in magazines or in the vicinity of explosives-handling and -loading operations.
6. Unless you are involved, keep clear of ammunition-handling operations.
7. Never tamper with explosive devices.
8. If you drop a fuzed projectile from a height of 5 feet or more, dump it overboard unless your ship's regulations require it to be set aside for turn-in to an ammunition depot.
9. Do not store drill charges in magazines with live ammunition.
10. TNT containers have a tendency to sweat an oily substance called exudate. TNT exudate is explosive and highly flammable, so never allow it to accumulate on decks or on porous materials such as wood or linoleum. To remove exudate, use plain water and a stiff fiber brush

or wooden spatula or scraper. Never use soap or alkaline solutions or scrape the exudate up with a steel scraper.

All pyrotechnic materials must be kept in special stowage spaces, usually located on topside decks. Any pyrotechnic material that shows signs of damage to its safety device is considered unserviceable and must be segregated for prompt disposal. Extreme caution must be taken to prevent accidental ignition of loose pyrotechnics made ready for disposal, because damaged material can be ignited by rough handling.

ELECTRICAL AND ELECTRONIC EQUIPMENT

All electrical and electronic equipment is hazardous, hence all safety precautions must be strictly observed. Most people treat high-voltage equipment with great care but tend to regard lightly the common 115-volt variety. Yet, 115 volts is the cause of more deaths than any other voltage. Cases of fatal shock have been recorded from the use of equipment such as portable grinders and drills, fans, movie projectors, and coffee makers. In most instances, death would have been avoided if proper grounding instructions had been observed. The precautions that follow must be observed

by personnel working on or near other types of equipment:

1. Most electronic equipment have a metal grounding strap connecting the equipment to the ship's hull. The purpose of the straps is to keep the equipment's frame and the ship's hull at the same electrical potential. Never paint, loosen, disconnect, or otherwise tamper with the straps without proper authority.
2. Never replace or pull a fuse. Only authorized personnel are allowed to do such work.
3. Motors and generators often have openings in their casings. Avoid dropping tools or other objects into the openings. Some machinery and electrical circuits generate magnetic fields, so be alert; do not let magnetic tools you are holding be drawn to such equipment.
4. Electrical and electronic equipment and power cables are identified by nameplates, tags, or other markings. Never paint over such identification markings.
5. Do not hang items on, or secure lines to, any power cable, antennas, waveguide, or other electrical or electronic equipment.
6. Do not use personal electrical equipment aboard ship without the approval of the engineer officer.

COMPRESSED GASES

The term *compressed gases* includes air, oxygen, acetylene, carbon dioxide, and other gaseous or gas-forming compounds held under pressure in steel bottles, cylinders, or tanks.

In general, three types of hazards are connected with compressed gases. They are as follows:

1. Cylinders containing compressed gas are usually round and long. They are made of heavy steel. Unless secured to a structure, they can roll, tip over, or bang around. If not secured properly, they can roll around and cause damage by bumping into a person or an object.
2. The cylinders contain gas under pressure—often under very high pressure. A cracked cylinder can fly apart. Air or gas from a valve or hose connected to a cylinder can blow dirt into your eyes; or the hose can whip around and strike you, causing an injury. If you drop or mishandle an oxygen cylinder so that its valve breaks off, you may see the heavy steel bottle take off like a rocket—causing injury and damage.

3. The cylinders may contain gases that are poisonous, flammable, or explosive, and often are all three. Acetylene cylinders are common aboard ship. If you ignite acetylene, it will blaze with intense heat; if it is mixed with air and a spark gets to it, it will explode. In fact, an acetylene cylinder can explode if it is overheated and then given a sudden blow. If oxygen comes into contact with oil or grease, you can be sure you will have a fire. Carbon dioxide (CO₂), used in fire extinguishers, is particularly dangerous; you will suffocate in a room filled with it. Also, CO₂ is extremely cold when it is discharged. It may cause painful blisters if it comes in contact with your skin.

You must handle, work with, and work around compressed gas cylinders with care and caution. The cylinders are heavy and can easily be tipped.

In general, weather-deck stowage will be provided for flammable and explosive gases. However, in specific cases, the approval of below-deck stowage depends on the particular type, mission, and arrangement of the ship. In such cases, these approved locations are shown on the ship's plans.

Compressed gases aboard all ships, except cargo ships, should be stowed in compartments designed for stowage of gas cylinders. In such cases, the following precautions must be observed:

1. Necessary steps should be taken to prevent the maximum temperature of the stowage compartment from exceeding 130° F.
2. When provisions are made for mechanical ventilation, this ventilation should be operated according to the damage control classification assigned. The classification for closure of this system is Z, (W), W.
3. In compartments designated for the stowage of flammable or explosive gases, the installation of portable electric wiring and equipment is not permitted.
4. Flammable materials, especially grease and oil, must be kept out of the stowage space used for oxygen cylinders.
5. Each cylinder must be securely fastened in the vertical position (valve end up) by using such means as metal collars. On cargo ships fitted especially for cylinder transport, other arrangements are approved.
6. Oxygen and chlorine must be stowed in compartments separate from flammable gases. Inert or nonflammable gases may be stowed in compartments designated for compressed gas stowage.

7. Compartments containing compressed gases must be ventilated for 15 minutes before entry if the ventilation has been secured; a suitable sign to this effect should be posted on the outside of the access door.

When compressed gas is stowed on the weather deck, the following additional precautions must be observed:

1. Oxygen and chlorine cylinders must not be in close proximity to fuel-gas cylinders.

2. Cylinders containing compressed gases should be stowed so that they will be protected. During the winter, cylinder valves must be protected against the accumulation of snow and ice. Warm water (not hot) should be used to thaw ice accumulations in cylinder valve caps and outlets. During the summer, cylinders must be screened from the direct rays of the sun.

3. Every effort should be taken to prevent corrosion of threaded connections of cylinders in stowage for extended periods of time. The use of grease or flammable corrosion inhibitors on oxygen cylinders is not permitted.

4. The stowage area should be as remote as practical from navigating, fire control, and gun stations.

ASBESTOS

Asbestos is a fibrous material that is incombustible, possesses high tensile strength, has good thermal and electrical insulating properties, and has moderate to good chemical resistance. Because of these characteristics, the Navy has had many uses for asbestos. Asbestos was used as the primary insulation and lagging material for high-temperature machinery, boilers, and piping on board ships. Other applications included floor tile, tile underlayment (especially decks above engineering spaces), rope and pressed gaskets, brake and clutch facings, and expansion joints. When intact and not disturbed, asbestos normally presents no hazards. Problems arise when repair work causes the generation of asbestos dust. Inhalation of asbestos fibers present in this dust may lead to various forms of asbestos-related diseases. Most symptoms of asbestos-related diseases do not show up until 10-45 years after exposure. Since the total removal of all asbestos materials on board Navy ships is not feasible, the Navy has instituted a program to control the use and replacement of asbestos with nonasbestos substitutes. ONLY specially trained and medically qualified personnel are authorized to remove asbestos. When asbestos material is being handled, complex safety

requirements and precautions are used. NEVER enter a space that has been designated as an asbestos hazard area unless specifically told to do so. For more detailed instructions on the hazards and control of asbestos, refer to OPNAV 5100.19B, *Navy Safety Precautions for Forces Afloat*.

FIBER GLASS

Reinforced plastic materials are currently being used by the Navy in the hulls of boats, in submarines, in minesweeping equipment, and in protective coverings for wood and steel, as well as in many other types of equipment and materials.

Reinforced plastic is made of glass fibers, resin, and chemicals; hence, the name fiber glass. The resin and activating chemicals are used to bond the glass fibers together to produce a very tough and rugged material. The resin used in making fiber glass can be either polyester or epoxy.

As you can see by the description of the materials used in fiber glass, it is not totally safe to work with. Certain safety precautions must be observed when working with or around fiber glass. If fiber glass is cut or ground, a fine dust is produced. This dust is abrasive in nature and can irritate the skin and eyes. You should use a filter mask respirator when working in this type of atmosphere.

The chemicals used in making fiber glass and fiber glass patches are very flammable and toxic. Adequate ventilation should be provided to remove the fumes and dust particles. Most important, never smoke in areas where fiber glass work is being carried out.

POWER TOOLS

During your career in the Navy, you may be required to use a variety of power tools. Whether these tools are electrical, pneumatic, or hydraulic, the same commonsense safety precautions apply to all of them.

Before you use a portable electric tool for the first time, have it inspected and approved by the ship's electrical department for safety. If it has a current ship's inspection mark, visually examine the attached cable for any cracks, breaks, exposed conductors, or a damaged plug. If any defects are found, turn the tool in to the ship's electrical shop for repair. Before plugging an electric tool into a receptacle, you should make sure the tool is turned off. When using portable electrical tools, you should wear safety glasses or goggles if the job involves danger from flying objects, such as paint or

metal chips. You should also wear ear protection devices if the tool has a Produces Hazardous Noise label on it.

Metal-cased portable electric tools must have a three-pronged plug on the power cord. If an extension cord is used, it must be the three-pronged type, with a three-pronged plug at one end and a three-pronged receptacle at the other end. When using an extension cord with an electric tool, you must first plug the tool into the extension cord and then the extension cord into the receptacle. When you are finished with the electric tool, switch it off, unplug the extension cord from the receptacle, and then unplug the tool.

Portable tools should be kept clean and in good repair. Arcing portable tools are not to be used in areas where flammable vapors, gases, liquids, or exposed explosives are kept.

CUTTING AND WELDING OPERATIONS

The convenience of arc and gas welding and cutting allows the performance of repair jobs in almost any location. The failure to use proper safety precautions during welding or cutting operations in such locations can present a serious fire hazard. Only properly trained personnel should operate gas welding or cutting equipment.

The gases used in welding and cutting are very explosive. When one of these gases is mixed with air, the mixture will burst into flames if a spark or flame is brought near it.

When welding or cutting a bulkhead, deck, floor, or other structure, you should check both sides of the structure to ensure that no materials near the structure will be damaged or will become a possible fire hazard.

Remove all combustible materials, flammable or explosive, from the area where welding or cutting is to be done.

Welding or cutting operations are not permitted in or on the outer surfaces of a compartment or tank that contains or has contained a flammable or explosive substance, unless applicable safety precautions are observed.

Fire watches must be posted on both sides of a deck or bulkhead before welding or cutting operations can be started. Personnel assigned fire watches should be thoroughly familiar with fire watch responsibilities and outfitted with the proper safety gear, such as gloves, proper eye protection (particularly when arc welding), and safety shoes. To make sure no fire hazards exist, personnel assigned to the duties of a fire watch must

remain at the location at least 30 minutes after the job is completed.

Keep approved fire-extinguishing equipment near welding and cutting operations. Usually a CO₂ extinguisher is adequate. If the space is small or if the access is only a small opening, CO₂ is not the extinguishing agent to use. CO₂ could fill the small space, and the small opening would not allow for breathable air to enter. The small entry or exit may also hinder any rescue attempts should you be overcome by suffocation. If CO₂ is not recommended, the use of water spray from a fog nozzle is preferred. In the event the fire is caused by electricity, you should secure power before using the water spray.

LIQUIDS UNDER PRESSURE

Any liquid in a system that has been pressurized is to be considered dangerous until the pressure has been removed. For example, the ship's fire-main system uses salt water that has been pressurized to make the water available throughout the ship. The pressurized water in the system is not dangerous, but the misuse of it is. Therefore, you should observe the following safety practices when using the fire-main system or any other system that may have pressurized liquid in it:

1. Never connect or disconnect a hose from the system until the pressure has been removed. This can be done by shutting off the valve on the fire-main system.
2. Never use ruptured or worn hoses with any system that has pressure in it.
3. When using a charged (pressurized) fire hose, never point it at anyone.
4. Spray paints, butane fluids, lacquers, and other aerosol products contain liquids under pressure. Be extremely careful with these containers. Do not use these containers near a flame, throw them in a fire, or puncture the containers.

ROTATING MACHINERY

The safe operation of rotating machinery and tools requires the operators be thoroughly knowledgeable in the equipment operation. It also requires strict adherence to established operating procedures. The operators should be familiar with the safety precautions for their own particular machinery. Therefore, when operating rotating machinery, you should observe the following general safety precautions:

1. Never place any part of your body into moving machinery. Never attempt to ride machinery that is not designed for human conveyance. Never wear jewelry, neckties, or loose-fitting clothing.

2. Wear proper protective clothing and equipment suited to the operation being performed (hearing protection; eye, hand, and foot protection; dust and paint respirators; and so on).

3. Before attempting to perform repairs or preventive maintenance on any equipment, ensure that it is de-energized and/or depressurized and properly tagged out of service before commencing work.

4. When working in the vicinity of electrical equipment or electrical cables, be alert to the presence of dangerous voltages and avoid striking such equipment with tools of any kind. Should such damage inadvertently occur, report it immediately to the ship's electrical officer.

5. Do not use compressed air to clean parts of your body or clothing or to perform general space cleanup instead of vacuuming or sweeping. Compressed air may be used to clean machinery parts that have been properly disassembled provided that the supply air pressure does not exceed 30 psi and a safety shield tip is used.

6. Reinstall shaft guards, coupling guards, deck plates, handrails, flange shields, and other protective devices removed as interference immediately after removal of machinery, piping, valves, or other system components during maintenance to prevent injury to personnel.

7. Inspect and/or test, according to scheduled PMS and other type commander requirements, all installed safety devices, alarms, and sensors. Assign a high priority to repair of defective safety devices.

8. The cleanliness of machinery and the space in which it resides can have a profound effect on the safety of personnel and equipment. Correct oil leaks at their source. Wipe up spills of any kind immediately, and dispose of the wiping rags immediately or store them in firesafe containers. Avoid trip hazards by maintaining proper stowage. Do not allow fire hazards to accumulate.

ACIDS, ALKALIES, AND OTHER CHEMICALS

Acids and alkalies are used in the Navy in the form of pure compounds and mixtures. These chemicals are hazardous in that they are corrosive (cause chemical burns) when they come in direct contact with the skin,

eyes, or other tissue. They can cause breathing difficulties or injure respiratory organs if too much of the acid mist is inhaled. The acids and alkalies can also cause dangerous chemical reactions if not handled properly.

When handling acids, alkalies, or other chemicals, you should observe the following precautions:

1. Wear chemically resistant rubber or plastic gloves.
2. Wear chemically resistant rubber or plastic goggles. You may need to wear a plastic face shield in addition to the goggles.
3. Wear chemically resistant rubber boots or overshoes with resistant soles. Wear trousers outside of the boots.
4. Wear a rubber or plastic apron.
5. Wear a respirator when indicated for the chemical you are working with.

Persons who have been seriously injured by exposure to acids or alkalies should seek medical attention immediately.

MARINE SANITATION SYSTEMS

Sewage is a mixture of all liquid domestic wastes, especially human body wastes (fecal matter and urine). Sewage contains large numbers of microorganisms, some of which are disease bearing. Typhoid and polio are two examples. Bacteria and viruses enter the human body through the mouth, nose, open sores, and so on. Therefore, you must observe the following basic precautions when working in sewage-handling areas.

1. Never take food or drink of any nature into sewage-handling areas.
2. Never work on sewage-handling equipment if you have open cuts or sores.
3. Maintain cleanliness of equipment at all times.
4. Wash down any spilled sewage immediately, before it dries, with water and a good quality nonscented disinfectant. Do not use liquid soaps or scented disinfectants because they may temporarily disguise inadequate cleanup procedures.
5. Always follow personal hygiene routines after working in a sewage-handling area or after being in contact with sewage-handling equipment.

NOTE: Notify the medical department and the damage control assistant (DCA) on the status of any holding or other marine sanitation device (MSD) whenever the ship is threatened by hostilities, fire, flooding, or conditions that could turn the MSD into a biological hazard to the ship's crew. Each ship should have developed plans to eliminate or control the biological hazards from these occurrences.

WARNING

NO SMOKING in the vicinity of the sewage-handling equipment. Fuel leaks or spills can occur in the incinerator area where temperatures may exceed the flash point of the fuels used. Methane and hydrogen sulfide may be emitted by any tank or tank leaks. These gases are also flammable and under some conditions are explosive.

HIGH NOISE LEVEL

Continuous exposure to noise at a high level can cause temporary or permanent hearing loss. Electrical/electronic equipment, portable power tools, machinery, and weapons are a prime source of loud noise.

The Navy has different types of hearing protection for use in subduing noise, such as earplugs (regular and disposable), headband earplugs, and the circumaural muff. If the noise is too loud, you may need to wear the earplugs and the circumaural muff for double protection.

RECREATION AND SPORTS

Participation in recreational activities is responsible for many injuries to personnel. Practically all sports involve some type of hazard. The principles of attack and retreat in body-contact sports arouse emotions that can lead to hazardous circumstances. When participating in sports, you should be familiar with and observe protective measures, rules, regulations, procedures, and applicable safety precautions.

When you engage in recreational activities, you should observe the following precautions:

1. Do not engage in recreational activities unless you are physically able to do so without harm.

2. Avoid activities that are not properly supervised.
3. Avoid overcrowded facilities.
4. Wear necessary and prescribed protective equipment and clothing.
5. Avoid overexertion and excessive fatigue. Such conditions can lead to injuries.
6. Do not engage in an activity if you have an old injury that may be aggravated by additional activity.
7. Before engaging in any vigorous sport such as football, observe the progressive warm-up period.
8. Avoid horseplay. This is a common cause of accidental injuries.
9. If you are injured, obtain medical attention immediately.
10. Do not engage in an activity if you have been drinking, and do not drink alcoholic beverages during the course of competition.
11. Do not attempt to play a new game or practice new athletic skills unless you are under the direction of a qualified instructor.
12. Do not take unnecessary chances.
13. Always keep a safe distance from sporting equipment being thrown, such as the discus and bats.

Remember, each person who engages in recreational activities will be responsible for protecting himself/herself from injury. Therefore, you must observe all rules and safety measures.

MOTOR VEHICLES

You may, at one time or another, be assigned duties as an operator of a Navy motor vehicle. As an operator, you will be responsible for the safe operation of the vehicle while it is assigned to you and for the safety of the passengers and cargo. You, as a passenger or operator, are required to wear seat belts. You are to make daily inspections of the vehicle assigned to you. If the vehicle is found to be unsafe, you will not be permitted or required to operate that vehicle until it has been repaired. You must obey all local traffic laws and ordinances while operating a motor vehicle on and off duty.

Except under extreme emergencies when no relief is available, you should only drive for short periods of time. If you must drive for a long period of time or if you become fatigued or drowsy when driving, you should pull off the road and stop for a few minutes to rest. Under no circumstances should you operate a vehicle if you have been drinking alcoholic beverages, if you are taking medication that will make you drowsy, or if you are sick or physically unfit to drive.

LIFTING

Lifting is so much a part of our everyday jobs that we do not think about it, and most of the time we do it wrong. Results of improper lifting may be a painful hernia, a strained or pulled muscle, or a disk lesion. For the sake of your back, you should observe the following rules and precautions for lifting:

1. Do NOT lift an object if it is too heavy or too clumsy for good balance. Get help, or use mechanical aids such as a dolly or hand truck.
2. Keep the load close to the center of your body. The farther the load is from the small of your back, the greater the strain. That is the reason a heavy compact load is easier to lift than a bulky, lighter load—you just cannot get the bulky object close to you. The best way to handle a compact load is to squat down close to the load with one foot alongside it and the other foot behind it. With the feet comfortably spread, you will have better stability with the rear foot in the position for the upward thrust of the lift.
3. Pull the load toward you; then lift it gradually. Avoid quick and jerky motions. Push up on your legs while keeping your back straight. A straight back keeps the spine, back muscles, and other organs of the body in correct alignment. Tucking in your chin helps to align the spine. No matter what size the load, get as close to it as you can; then get a good grip by using the full palm and extending your fingers and hands around the object. Remember that your fingers have very little power and need the strength of the entire hand. Keep your arms and elbows tucked in to the side of your body to help keep the body weight centered. Avoid twisting your body during the lift or while moving the load; change directions by moving your feet. Twisting your body during a lift is one of the most common causes of back injury.

4. Be sure you have a clear vision over the load you are carrying.
5. Do NOT change your grip while carrying the load.
6. Face the spot where you intend to set the object; bend your knees, keeping your back as straight as possible and the weight of the object close to your body.
7. Always allow enough room for the load to prevent injury to your toes and fingers.
8. When you are placing a load on a table or bench, set it on the edge and push it forward with your arms and body. Remember, if the load is too heavy or too awkward for you to move alone, GET HELP! Remember also, LIFT WITH YOUR LEGS, NOT WITH YOUR BACK!

SHIPIARDS AND DRY DOCKS

Sooner or later every ship in the Navy will enter a shipyard or dry dock, usually during a predetermined scheduled overhaul. At times ships go into shipyards or dry docks between overhauls for necessary repairs.

Shipyards and dry docks are notoriously famous for being dangerous places to work. So much work is scheduled, normally in a limited time frame, that safety is sometimes sacrificed for expediency. During these times, observe what is taking place around you. Notice things like missing lifelines on deck (it's a long way to the bottom of a dry dock) and hatch or manhole covers removed without warning barriers erected. Working inside previously sealed compartments, voids, or tanks can be extremely dangerous if the proper safety precautions are not followed.

Often a lot of different evolutions are going on in a confined space. Welding or cutting operations could and often are conducted in the same small space as heavy equipment removal and chipping and painting.

Sometimes all lighting in a compartment or passageway may be removed for various reasons. That presents several safety concerns. You may trip on equipment or tools someone has left behind or bang your head on wire runs or ventilation ducts hanging down where they shouldn't be.

Fire hazards are always a problem in shipyards. With the amount of equipment removal or repairs that require welding or cutting, the repainting of spaces, opening fuel tanks and voids, the need to ensure that all

flammable material is removed from the ship everyday is increased significantly.

You may not be able to stop all shipyard accidents; but by following the prescribed safety precautions, you can make the shipyard environment a lot safer place to work. Every ship has a shipyard safety doctrine and conducts safety training before entering a shipyard. If you pay attention at safety lectures and read the safety doctrine, your ship's stay in the dry dock will be much safer.

AIRCRAFT STRESS AREAS

Flight decks and hangars are dangerous, and the danger to personnel goes beyond the possibility of crashes. Engine exhaust tailpipes, engine-starting units, liquid oxygen (LOX) bottles and connectors are all capable of causing severe injury. Engine-starting equipments (huffers) generate high temperatures that could cause severe burns to personnel. If not sufficiently separate from the area where fuel tanks, ammunition, or other hazardous materials are being handled, they could cause fires or explosions. Jet engines also generate very high temperatures. Before attempting any type of repair or service work on these engines, make sure they have had enough time to cool down to avoid any possibility of burns.

Any area in which LOX is being used requires extra safety precautions. LOX in liquid form flows like water, but it also boils into gaseous oxygen at 297°F and is capable of immediately freezing any object it contacts. When LOX expands as a gas and is confined and allowed to warm, it exerts extremely high pressures (up to 12,000 psi), causing it to be very dangerous. Always keep clothing and tools free of oil and dirt. Never smoke or have any spark or flame-producing materials near an area where LOX is being handled. A spark or flame in this oxygen-rich atmosphere could be extremely dangerous with violent results. If your skin comes into contact with LOX, get medical attention immediately. Once again, safety procedures and precautions must be followed when you work with aircraft and equipment. By following these procedures and precautions, you significantly reduce your chances of becoming injured.

HEAT STRESS PROGRAM

Heat stress is a combination of air temperature, thermal radiation, humidity, airflow, and work load that places stress on the body. The Navy's Heat Stress Program evaluates and monitors heat stress conditions to establish safe work schedules in heat stress

environments. Heat stress conditions aboard ship can occur in almost any space. The causes of heat stress conditions are steam and water leaks, ventilation system deficiencies, missing or deteriorated insulation, and weather conditions of high heat and humidity. Prolonged exposure to heat stress conditions can cause heat exhaustion or heatstroke. These injuries occur when the body temperature continues to increase. The first signs are increased body temperature causing fatigue, severe headaches, nausea, and reduced physical and mental performance. These injuries can be life-threatening if not immediately and properly treated. The best way to control heat stress hazards is to follow recommended work practices and procedures. Every ship in the Navy has a heat stress monitoring program. This program is designed to assist personnel that may be required to work in a heat stress environment by limiting the time they spend in a high heat stress situation. Personnel required to work in a heat stress environment receive training at regular intervals. Heat stress not only affects personnel that work below decks or in confined spaces, but also personnel that work topside. Read your command's heat stress instruction; it may help you work smarter and safer.

COLD WEATHER

The Navy conducts operations in areas where weather is often a problem. We have discussed the possible problems that may be encountered when in the tropics. The Navy also operates in areas of the world where severe cold weather is also a problem. These problem areas range from the Antarctic to the northern regions of the Pacific or Atlantic Oceans.

The major health risk to personnel when operating in these areas is hypothermia. Hypothermia results when the temperature of the body reaches subnormal levels. First aid for hypothermia, like that for heat stress, must be immediate. Other safety factors involved with operations in colder regions include ice accumulation on ships' decks and superstructures. Another problem can occur when outside bulkheads or fittings become so cold that when touched with bare skin, the skin will stick to these objects.

To protect themselves from hypothermia, personnel who work topside or go topside as part of their duties wear clothing designed to maintain body heat. These personnel must also limit times of exposure to such conditions. If you work topside and start to lose feeling on any part of your body, get inside and warm up. Safety is paramount.

GENERAL PRECAUTIONS

The precautions that follow are general, all-around safety practices that do not fit into any particular category. Some apply to several situations. Failure to observe any one of these practices could result in a serious mishap.

1. Use tools that fit the work being done. Screwdrivers are not meant to be used as punches.
2. If you are issued protective gear, wear it when performing work for which the gear was designed.
3. Never overload electrical outlets.
4. Keep file drawers closed when they are not in use. Avoid making files top-heavy and be sure drawer stops are operative.
5. Do not hang extension cords where somebody can be snagged by them. Extension cords can become a trip hazard also. When using an extension cord, make certain it won't be cut by a closing door or by any other means while it is lying on the deck.
6. Keep all tools in good condition.
7. Do not watch a welder's arc if you are not wearing dark goggles.
8. Report defective equipment.
9. When you open a hatch, always secure it open with the equipment provided.
10. Secure all loose articles when heavy weather is expected.
11. Take heed of all warning signs: HIGH VOLTAGE, STACK GAS, RF HAZARD, and so on.
12. Never smoke in NO SMOKING areas, when the smoking lamp is out, when painting, or when handling ammunition or flammables.
13. Follow good housekeeping practices at all times. Do not allow loose gear to accumulate where it might present a tripping hazard.
14. Learn and follow all safety precautions for the job you are doing.

HAZARD IDENTIFICATION

Tags and labels are used to identify various hazards to personnel. The use of tags or labels is not a substitute

for other safety measures. Tags or labels associated with tag-out procedures must never be used for valve identification or marking leaks in piping systems. Remember, once a tag or label is installed, it should only be removed by signed authorization of the authorizing officer. Always follow your command's procedure for logging and recording tag-out actions.

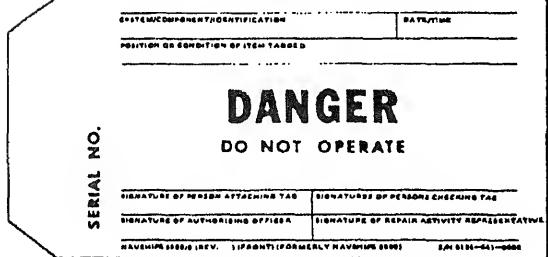
EQUIPMENT TAG-OUT PROCEDURES

The purpose of these procedures is to:

Prevent improper operation when a component, equipment, system, or portion of a system is isolated or in an abnormal condition.
... Provide a procedure for use when an instrument is unreliable or is not in normal operating condition.

*-Standard Organization and
Regulations of the U.S. Navy,
OPNAVINST 3120.32B*

Almost everyday we are in one way or another, directly or indirectly, involved with tagging out a piece of equipment for repair or maintenance. The *Standard Organization and Regulations of the U.S. Navy* (OPNAVINST 3120.32B) has established certain guidelines and procedures that govern how to tag-out certain pieces of equipment for repair or maintenance. These procedures have been developed through time, not only to protect machinery and equipment but to also protect naval personnel. For example, suppose an air-conditioning motor controller has been turned off, and an electrician is working on the controller. The Electrician's Mate (EM) working on the controller didn't bother to tag out the power panel according to OPNAVINST 3120.32B and the command tag-out instruction because he thought the job would only take a few minutes. In the process of correcting one problem, the EM found another fault he would have to fix later, but decided to go ahead and repair it then. Seaman Boat is cleaning the berthing compartment and decides to take a break. He realizes the compartment isn't as cool as before, so he goes into the passageway and finds the controller turned OFF with no danger tag attached. He assumes that someone walking through the passageway bumped the controller to the OFF position. He turns on the controller and returns to the berthing compartment. The EM



BLACK LETTERING ON RED TAG

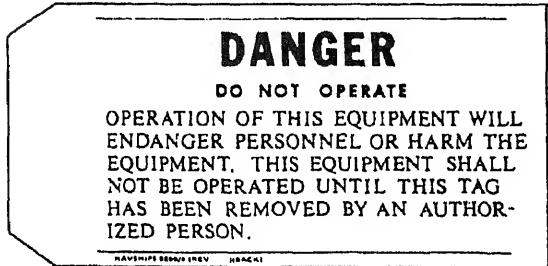


Figure 13-2.—DANGER tag (red).

receives a fatal 440-volt shock. The mishap (that word again) could and would have been prevented if the EM would have followed the proper procedures for working on electrical equipment. The procedures outlined in OPNAVINST 3120.32B are mandatory to standardize tag-out procedures used by ships. Use of these procedures for planned maintenance system (PMS) maintenance actions is NOT authorized in submarines, submarine tenders, submarine rescue vessels, propulsion areas of nuclear-powered surface ships, or nuclear support facilities equipment or systems in destroyer tenders. You should be familiar with your command's tag-out procedures. If not, talk to your supervisor. Your supervisor will help you locate the correct instruction so you can study it. Remember, the tag-out system not only protects systems and equipment, but also you and your shipmates.

Presently only two authorized tags are used in the Navy to identify a defective piece of equipment or a defective instrument: the DANGER tag and the CAUTION tag. Any other tags are not authorized for this purpose.

Danger Tag

The DANGER tag, NAVSHIPS 9890/8, figure 13-2, is a RED tag that prohibits the operation of



BLACK LETTERING ON YELLOW TAG

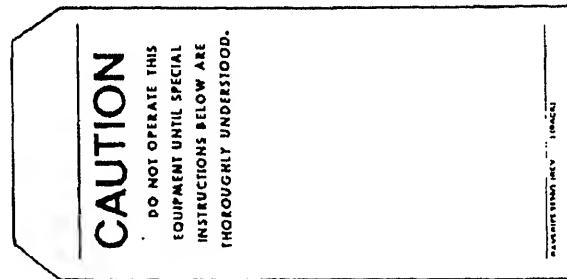


Figure 13-3.—CAUTION tag (yellow).

equipment or systems that could jeopardize the safety of personnel or endanger equipment, systems, or their components. Under no circumstances will equipment, systems, or components be operated or removed when tagged with DANGER tags, except as authorized by higher authority.

Caution Tag

The CAUTION tag, NAVSHIPS 9890/5, figure 13-3, is a YELLOW tag used as a precautionary measure that provides temporary special instructions or indicates unusual caution that must be exercised when operating equipment, systems, or components. These instructions or precautions must state the specific reason the tag is installed. A CAUTION tag will not be used if equipment or personnel can be endangered when using normal operating procedures.

LABELS

Labels are used to identify material hazards in three principal categories: health, fire, and reactivity (instability). Labels are also used to indicate the severity of material hazards numerically by five divisions ranging from 4 (severe hazard) to 0 (no special hazard). This information is presented by a diamond-shaped diagram divided into four diamond-shaped areas

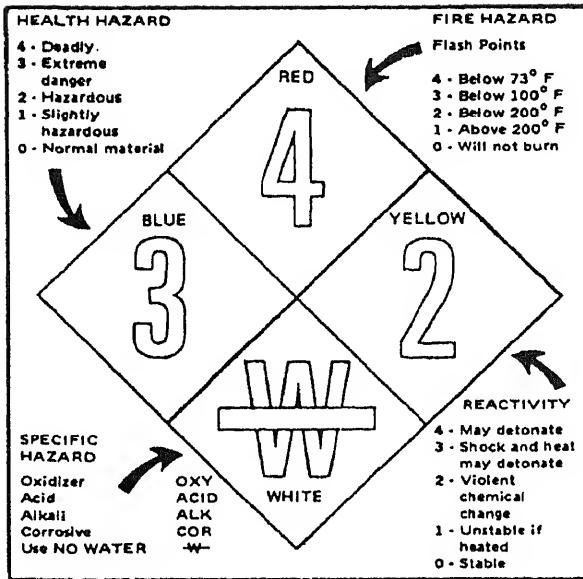


Figure 13-4.—Sample label.

(fig. 13-4). The health hazards will always be shown by the diamond on the left (blue background or blue numerals). The fire hazards will always be shown by the diamond at the top (red background or red numerals). Reactivity hazards will always be shown by the diamond on the right (yellow background or yellow numerals). The bottom diamond (white) will indicate specific types of hazards, including the symbol which means do not use water if this material is burning (or near something that is burning). Other symbols used alone or in combination with each other or with **W** are as follows:

OXY	Oxidizer	Do not store with combustible material
ACID	Acid	
ALK	Alkali	
COR	Corrosive	

Presently only two authorized labels are used in the Navy to identify a defective piece of equipment or a defective instrument: the OUT OF COMMISSION label and the OUT OF CALIBRATION label. Any other labels are not authorized for this purpose.

Out of Commission Labels

The OUT OF COMMISSION label, NAVSHIPS 9890/7, figure 13-5, is a RED label used to identify instruments that will not correctly indicate proper

101111334-GNA-595 5/4/00-5/18/00 FORMERLY NAVSHIPS 9890/7 NAVSEA 9210/6	OUT OF COMMISSION	
	SERIAL NO.	DATE
	AUTHORIZED BY	CONCURRENCE BY
	TAG BY	TIME

Figure 13-5.—OUT OF COMMISSION label.

9210-240-41-810-520 (18-1)	OUT OF CALIBRATION	
	SERIAL NO.	DATE
	AUTHORIZED BY	CONCURRENCE BY
	TAG BY	TIME

Figure 13-6.—OUT OF CALIBRATION label.

operating parameters because they are defective or isolated from the system. This label indicates that the equipment cannot be relied on and must be repaired, recalibrated, or reconnected to the system.

Out of Calibration Labels

The OUT OF CALIBRATION label, NAVSEA 9210/6, Figure 13-6, is an ORANGE label used to identify instruments that are out of calibration and will not accurately indicate parameters. This label indicates that the instrument may be used only with extreme caution.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective devices do nothing to reduce or eliminate hazards. They merely establish a "last line of defense." Some devices that are not worn properly or that are subjected to improper maintenance may not work as designed. For this reason, proper equipment selection, maintenance, personnel training, and mandatory enforcement of equipment use are key elements in the use of personal protective equipment.

You should know what equipment to wear, when to wear it, and how to wear it. You should also know how to take care of the equipment. If you take care of the protective devices, they will take care of you.

The following paragraphs describe some of the protective equipment available to personnel and the procedures to follow in upkeeping this equipment:

- Eye protection includes such articles as personal eyeglasses, common-use goggles, and common-use face shields. These articles should be kept clean and disinfected. Personal eyeglasses are the responsibility of the owner/wearer. Eye protection should be stored where it will be protected from dust, moisture, and the weight of other objects placed directly on it. The best container is probably the box it was packaged in by the manufacturer.
- Respiratory protection, such as respirators, should be assigned to you for your exclusive use, if practical. Respirators should be cleaned and disinfected regularly. While cleaning, you should check for wear or deterioration. This type of protection should be stored in a container that will protect it from dust, moisture, and the weight of objects placed on top of it.
- Hearing protection includes articles such as circumaural protection and earplugs. Earplugs should be washed often (with the exception of the disposable plugs, of course). The circumaural protective devices should have the ear pads cleaned and disinfected periodically. Most small earplugs come in a small container especially made for them. The circumaural device can be hung from the headband.
- Foot protection includes steel-toe boots or shoes, which should fit properly. When they wear out, replace them.
- Head protection includes helmets and hats that are worn to protect the head from falling or flying objects and low overheads. Check these periodically for worn headbands or cracks in the shell.
- Electrical protective devices include rubber gloves, rubber mats, rubber hoods, rubber sleeves, and rubber blankets. Keep these items clean and free of moisture. Check these periodically for cracks or holes in the rubber material. When storing the gloves, return them to the box they came in and do not stack anything on them that would crush them.

PROCEDURES FOR REPORTING SAFETY HAZARDS/VIOLATIONS

The first part of this chapter explained your personal responsibilities. If you detect a safety hazard, you are required to report this hazard to your immediate supervisor. The supervisor will then have the hazard

corrected or seek assistance from the ship's safety officer on ways to correct it. OPNAVINST 5100.19B, *Navy Safety Precautions for Forces Afloat*, contains the information on Navy safety.

SUMMARY

Throughout your Navy career you will continually hear the phrase "Think safety"—and rightfully so. As stated at the beginning of this chapter, our profession is inherently dangerous. We can make our place of work considerably safer simply by paying attention to what goes on in our work space on a daily basis.

We have covered a wide variety of safety factors in this chapter. How to properly and safely embark and disembark a liberty boat was discussed. You learned how to properly use cleaning supplies and equipment to keep your berthing compartment shipshape. The proper use of paint and utensils to keep your ship looking good was also covered. How to use the tag-out system to repair or replace equipment, systems or components to avoid hazards to personnel or equipment was stressed. Numerous evolutions conducted aboard ship on a daily basis would be safer if people would take a few minutes to observe what is going on. Hopefully, observing the safety precautions associated with doing a particular task will reduce mishaps.

Every job in the Navy has a set of safety guidelines. In their haste to get the job done, people sometimes cut corners. They do not realize that just around the corner lies an overlooked or disregarded safety precaution waiting to get us. Paying attention to what goes on around you and your shipmates and observing the proper safety precautions will reduce the number of mishaps considerably. Think safety!

REFERENCES

Navy Occupational Safety and Health Program Manual for Forces Afloat, OPNAVINST 5100.19B, Department of the Navy, Office of the Chief of Naval Operations, Washington, D.C., 1989.

Shipboard Hazardous Materials/Hazardous Waste Management Plan, NAVSEA 59593-A7-PLN-010, Naval Sea Systems Command, Department of the Navy, Washington, D.C., 1983.

Standard Organization and Regulations of the U.S. Navy, OPNAVINST 3120.32B, Department of the Navy, Office of the Chief of Naval Operations, Washington, D.C., 1986.

CHAPTER 14

SEAMANSHIP

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Identify the terminology used by deck force personnel.
2. Define the difference between lines and ropes.
3. Describe the procedures for measuring line and wire rope.
4. Identify the different types of lines.
5. Describe the proper maintenance procedures for line and wire rope.
6. Define the procedures for whipping a line.
7. Recognize and identify the methods for tying the bowline, clove hitch, square knot, and bowline on a bight.
8. Define the procedures for splicing a line.
9. Describe the safety precautions required when working with or around lines under tension.

To ensure safety at sea, the best that science can devise and that naval organization can provide must be regarded only as an aid, and never as a substitute for good seamanship, self-reliance, and sense of ultimate responsibility which are the first requisites in a seaman

— C. W. Nimitz,
Letter to U.S. Pacific Fleet,
13 February 1945

At this stage in your Navy career, you are learning thousands of things entirely new to you. You are probably having difficulty assigning relative importance to them. The importance of these skills and knowledges will become more obvious, in part, because the most important things will be emphasized in your day-to-day living. This is as it should be, except that persons who are not assigned to the deck force will not be greatly concerned with matters of seamanship and, as a consequence, may begin to think of it as unimportant.

Such an idea is far from the truth. Seamanship is the sole skill that ties every member of the Navy together. The uniform worn by Navy members, from seaman to admiral, implies that the wearer has a certain degree of proficiency in the art of seamanship. The fact that you

may later become, for example, an Electronics Technician does not alter the fact that you are first a seaman and then a technician. You should be proud of your ability as a seaman as you undoubtedly will become of your ability to perform your other duties.

Even though you do not work on deck everyday, there will be times, particularly on small ships, when you will be required to assist the deck force. You may have to carry stores, assist in replenishment-at-sea operations, assist in mooring or unmooring, or assist with innumerable other tasks. At such times, you will be expected to have a general idea of what is going on, how and why a task is being accomplished, and be able to carry out orders intelligently. Therefore, you should take every opportunity to observe and learn as much as you can about seamanship. This chapter provides only basic seamanship information. Further details may be found in the *Seaman* and *Boatswain's Mate 3 & 2* training manuals.

Seamanship as covered in this chapter is divided into the following basic sections: DECK, BOAT, and MARLINESPIKE seamanship. Deck seamanship concerns the general work that goes on about the ship's deck and the equipment used. Anchoring, mooring, rigging for and handling heavy weights and cargo, towing, and a host of other skills are considered deck seamanship. Boat seamanship, as the name implies, concerns the handling of boats. Marlinespike

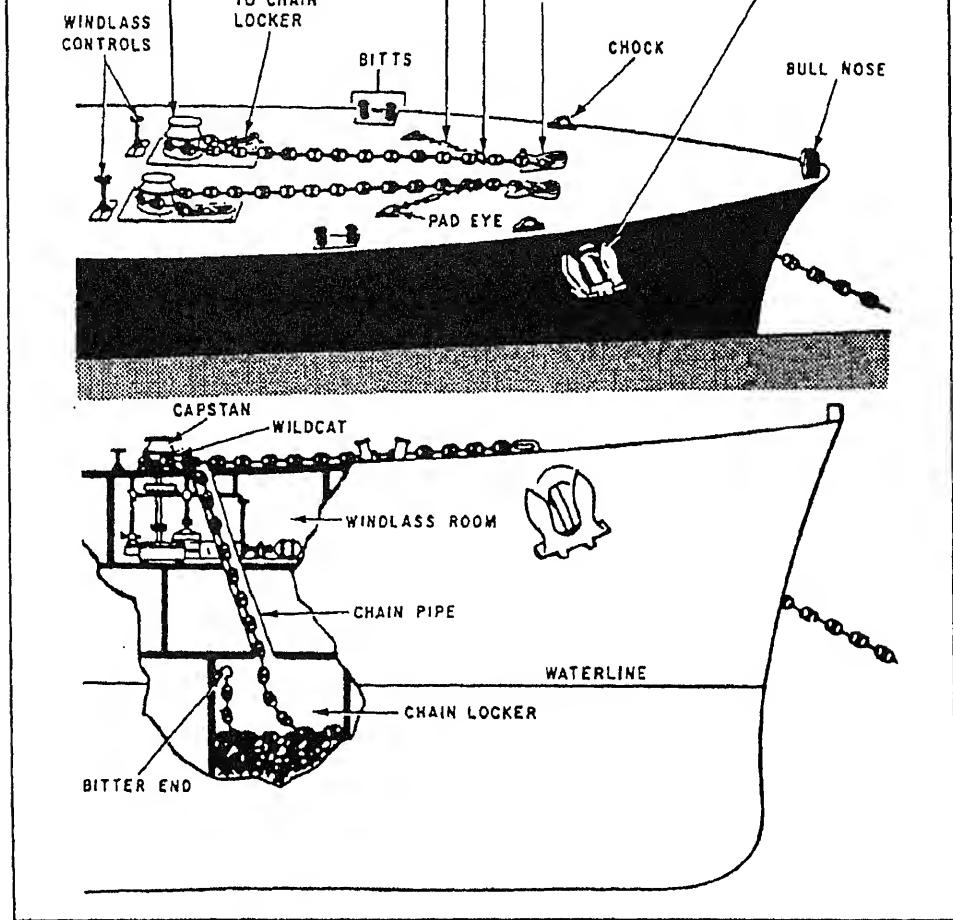


Figure 14-1.—Typical ground tackle and chain stowage.

seamanship concerns the use and care of line and consists of forming knots, making splices, and fashioning useful and decorative articles from small stuff and twine.

DECK EQUIPMENT

Deck equipment consists of all equipment used in the application of deck seamanship, which is work normally performed by the deck force. In the interest of broadening your knowledge of shipboard equipment and terminology, and because you may be called upon to assist the deck force in various seamanship evolutions, some of the more familiar items of deck equipment are discussed.

GROUND TACKLE

Ground tackle is the equipment used in anchoring and mooring with anchors. It includes anchors, anchor cables and chains, and associated equipment, such as chain stoppers, bending shackles, outboard swivels, shots, and detachable links. Figure 14-1 shows a typical ground tackle arrangement on a forecastle.

ANCHORS

Anchors can be defined by their stowage location aboard ship or by their type of construction. Bow anchors are carried on the bow and are secured (housed) in the hawsepipes. Stern anchors are carried on the stern. On landing ships and craft, stern anchors are secured

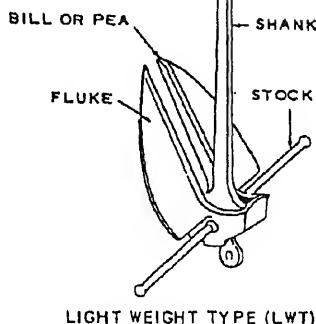
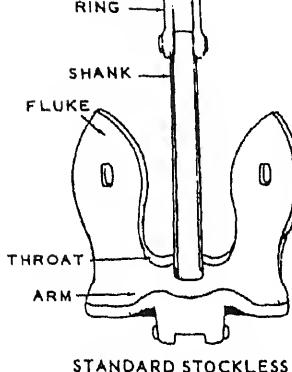


Figure 14-2.—Anchors.

the stern and are used to assist in pulling away from beaches.

The most common types of anchors used aboard ship are the stockless and the lightweight (or stock in crown). The two anchors shown in figure 14-2 are of Navy design. The stockless types are used chiefly as bow anchors (bowers) on most Navy ships. Originally, the lightweight types were used only on small boats and as stern anchors of landing ships and craft. Recently, however, they have made their appearance as bowers for several types of vessels.

ANCHOR CHAIN

Modern Navy anchor chain consists of studded links of high-strength steel. (Studs are crosspieces of metal forged or welded in the center of the links to prevent the chain from kinking.) Chains are made up of 15-fathom (90-foot) sections called standard shots. The number of shots per chain depends on the size of the ship. Shots are secured together by detachable links that can be readily disassembled whenever it is desirable to break the chain.

STOWING CHAIN

As the chain comes aboard, it passes along the deck on metal flash plates, over the wildcat, and down into the chain locker. Each chain goes into a bin called a chain locker, as shown in figure 14-1. Its bitter end is secured to a ring bolt on the bulkhead of the chain locker.

ANCHOR WINDLASSES

The Navy uses two types of anchor windlasses for lifting the ship's anchor. The vertical shaft type (fig. 14-1) is used on most combatant ships. The horizontal shaft type (fig. 14-3) is used on amphibious and auxiliary ships. Both types are equipped with wildcats, which engage the links of the anchor chain. The wildcat may be disengaged when it is desired to use the capstan (vertical type) or the gypsy heads (horizontal type) for handling lines or wire.

ACCOMMODATION LADDER

Frequently, the accommodation ladder is mistakenly called the gangway. However, gangway actually means the opening in a bulwark or life rail that

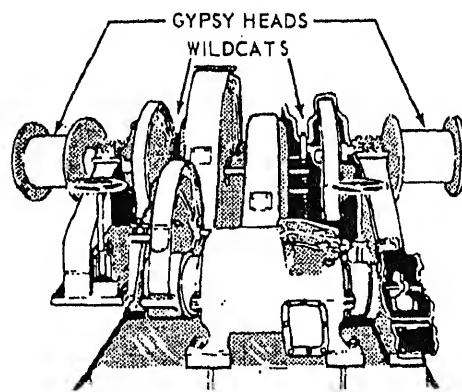


Figure 14-3.—Horizontal shaft anchor windlass.

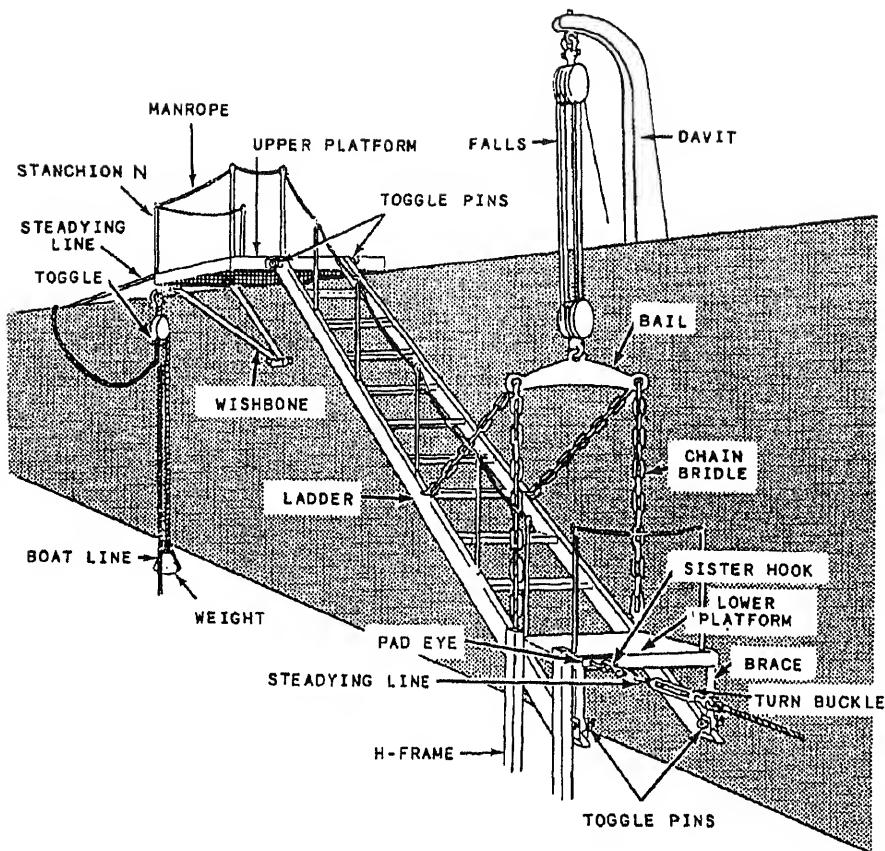


Figure 14-4.—A rigged accommodation ladder.

gives access to a brow or an accommodation ladder. An accommodation ladder (fig. 14-4) consists essentially of an upper and a lower platform connected by a ladder. The lower end is supported, raised, and lowered by a block and tackle (called falls) and is usually suspended from a davit.

Brow is the Navy term for gangplank. Browns are ramps used between ships and between a ship and pier. They may be simply two or three wooden planks fastened together, or they may be elaborate affairs with handrails and wheels at one or both ends to prevent a ship's motion from unduly affecting the positioning of the brow.

MOORING LINES

A ship is moored when it is made fast to a buoy, when it is between two buoys, when it is between two anchors, or when it is secured by lines alongside a pier or another ship.

The lines used in mooring a ship alongside a pier are illustrated in figure 14-5. Well in advance of mooring, the lines should be faked down, fore and aft, each near the chock through which it passes in

preparation for passing the line. The procedure for faking a line and a description of deck fittings are presented later in this chapter.

The bow line and forward spring lines prevent the ship from drifting astern. The stern line and after spring lines prevent the ship from drifting forward. For example, as shown in figure 14-5, lines 1, 3, and 5 are called forward lines; lines 2, 4, and 6 are called after lines. These lines, when secured, tend to breast the ship in. The forward and after spring lines are used to prevent the ship from drifting forward or aft.

The various types of line and wire rope are discussed in the Marlinespike section of this chapter.

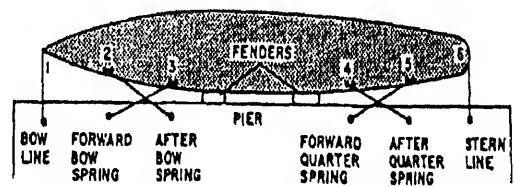


Figure 14-5.—Ship's mooring lines.

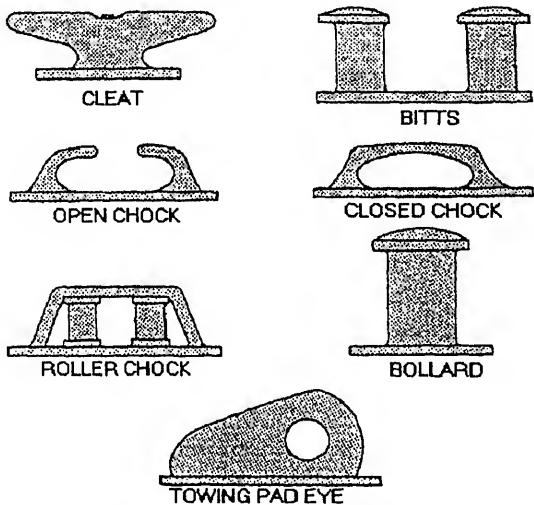


Figure 14-6.—Deck fittings.

In carrying out the mooring operation, teamwork is essential. Lines must not be kinked or fouled. Keep control of the lines and avoid dipping them into the water. Observe all safety precautions.

If the ship is to remain moored for a long period, lines are doubled up and bound together with marline hitches, and rat guards are placed on each line.

To provide protection to the side of the ship while it is alongside a pier, camels (large wooden logs or rectangular structures) often are placed between the pier and the ship. Fenders (large cylindrical objects of rubber or fibrous material) are swung over the side of the ship

to give bumper support against damage whenever a ship lays alongside another ship or a pier.

DECK FITTINGS

Deck fittings are used aboard ships and boats mainly for the securing of mooring lines. All fittings shown in figure 14-6 are found aboard ship except the bollard, which is a pier fitting. The pad eye shown in the figure is not used for mooring but for towing other vessels. Different variations of the pad eye are used for securing heavy objects and equipment.

DAVITS

Boats carried aboard ships usually are handled by powerful cranes and booms that hook on to slings attached to hoisting points built into the strong parts of the boat's structure. Boats stowed at davits are lowered and hoisted by the davit machinery. Basically, a set of davits is nothing more than a special crane that is designed specifically for handling boats in a safe and timely manner.

BOAT BOOMS

Ships that are at anchor or moored to a buoy rig out their boat booms for the purpose of mooring their boats well clear of the side. This method of securing is known as hauling out to the boom. Forward booms are called lower booms; after booms are called quarter booms.

The boat boom shown in figure 14-7 is a spar, secured to a gooseneck by a pin on the side of the ship, which allows free motion fore and aft. The outboard end

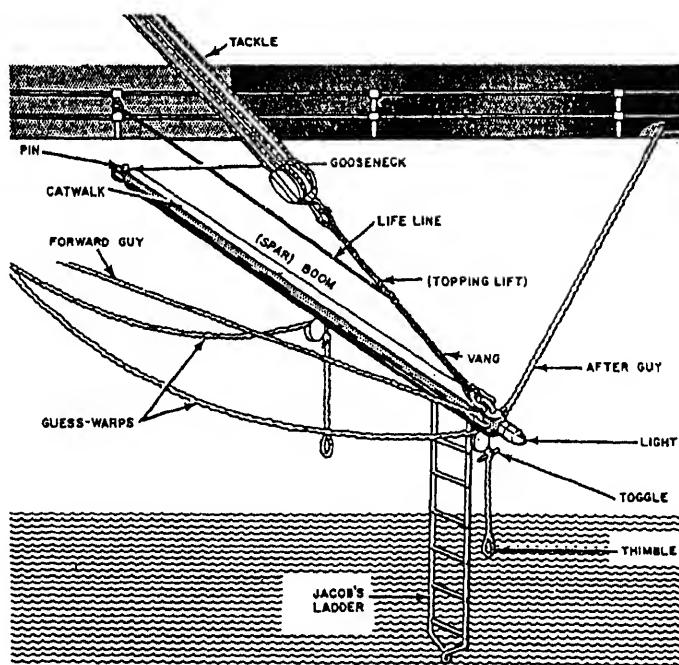


Figure 14-7.—Parts of a boat boom.

of the boom hangs from a wire vang and tackle combination called the topping lift. Fore-and-aft motion is controlled by lines called forward and after guys.

A strong line called a guess-warp runs from well forward on the ship, out through a block or blocks on the boom, and ends in a metal thimble through which boats can reeve (pass) their bow lines. A small piece of wood called a toggle is seized between strands of the guess-warp above the thimble to keep it from running up, out of reach, when a boat lets go. One or more Jacob's ladders (a rope ladder) from the boom permit boat crews to come aboard.

BOAT SEAMANSHIP

Boat seamanship encompasses much more than a knowledge of the kinds of boats in operation in the Navy. Boat crews are responsible for the safe operation and upkeep of their craft and must receive training in a number of areas. Some of the techniques to be mastered require much practice and experience before a boat crew can become accomplished in its assigned duties. If you are assigned to duties as a member of a boat crew, you should study the *Seaman* and *Boatswain's Mate 3 & 2* training manuals and complete the required personnel qualification standards (PQS).

Boats used by the Navy are of three general groups. Each group may be determined by its assigned mission and by its type, design, and construction. The three groups of boats are service craft, combatant craft, and boats in general.

BOATS

The term *boat* refers to a noncommissioned waterborne vessel that is not designated as a service craft. A boat is capable of limited independent operation. Officer/personnel boats, motor whaleboats, and utility boats fit into this group. Boats carried aboard ship that can be hoisted from and lowered into the water are known as ship's boats.

SERVICE CRAFT

The term *service craft* is applied to waterborne craft that are designed for special use by type. Harbor tugs, ferry boats, various non-self-propelled barges, and floating dry docks are designated service craft. Figure 14-8 depicts several examples of Navy boats and service craft.

COMBATANT CRAFT

Combatant craft are those craft or boats specifically designed for combat roles. Figure 14-9 shows a variety of patrol, riverine, amphibious warfare, and special combatant craft.

BOAT TERMS AND NOMENCLATURE

Boat crew members often develop the habit of calling objects and the activities around them by their proper names. In times of emergency, your understanding and correct response to such terms could save valuable time.

The *forward* end (fore) of the boat is the *bow* and the *after* end (aft) is the *stern*. When you are facing forward, the right-hand side is called *starboard* and the left side is *port*. When an object is aft of another object, it is said to be *abaft* and the opposite position would be *forward*. When something is said to be *athwartships*, it is across the boat from side to side. The term *amidships* is a point about halfway between the bow and stern or the sides of the boat. *Inboard* usually describes the area inside the boat or an object nearer the center of the boat. *Outboard* describes the area furthermost from the boat's center or beyond the side of a boat.

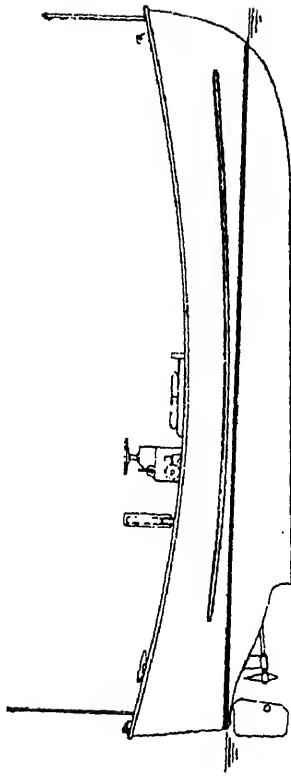
Figure 14-10 depicts the 26-foot personnel boat with features that are similar to most Navy boats.

By studying the nomenclature shown in figure 14-10, you will become familiar with much of the deck and hull equipment used on Navy boats. The glossary in Appendix 1 of this manual will assist you in identifying some of the terms.

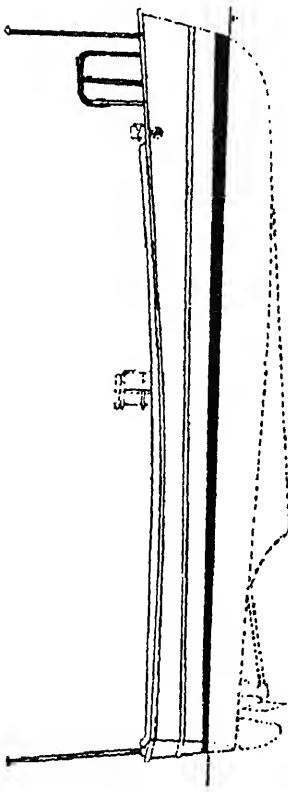
BOAT SAFETY

Because the majority of Navy personnel are concerned with small boats only in the role of passengers, this section is written from the standpoint of passengers rather than crew members. Every sailor should be thoroughly familiar with the following boat safety precautions:

1. Obey all orders from the coxswain and boat officer.
2. Embark in a quiet, orderly manner and move as far forward as possible. Once embarked, stay in place.
3. Keep all parts of your body in the boat; do not perch on the gunwales.
4. Do not engage in horseplay.

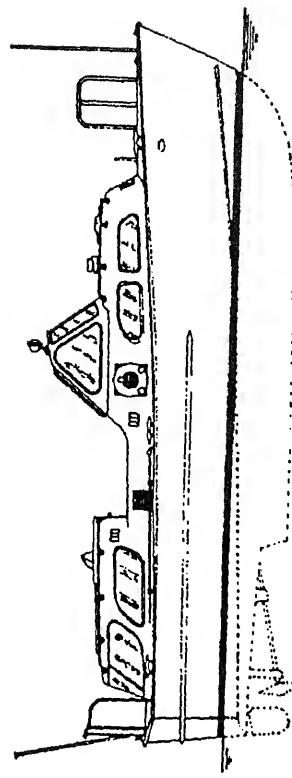


18-FOOT UTILITY BOAT

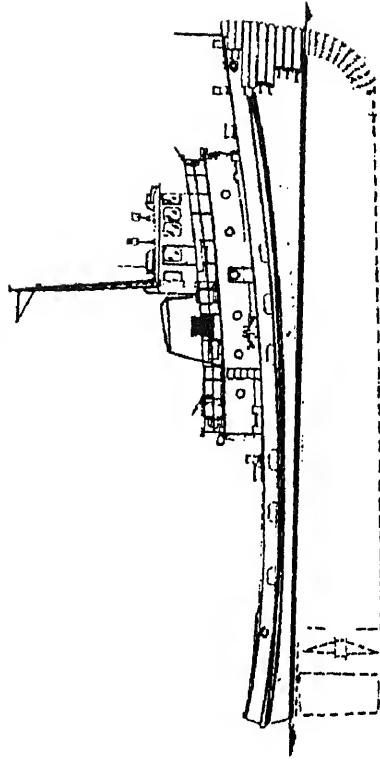


33-FOOT UTILITY BOAT

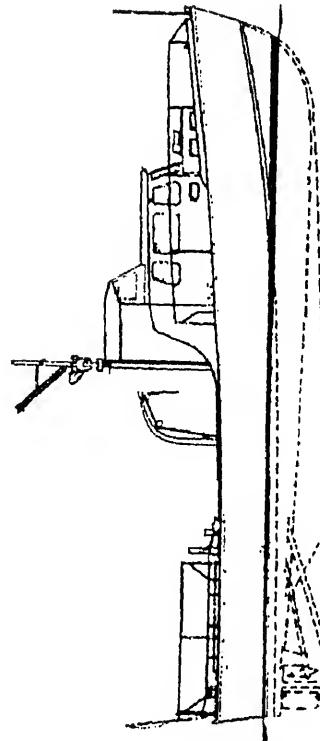
26-FOOT MOTOR WHALE BOAT



33-FOOT PERSONNEL BOAT

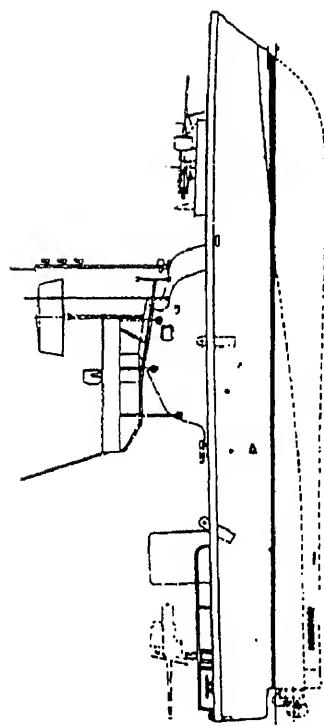


109-FOOT HARBOR TUG (YTB)

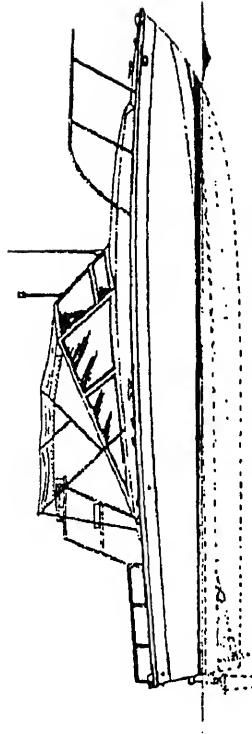


45-FOOT UTILITY BOAT

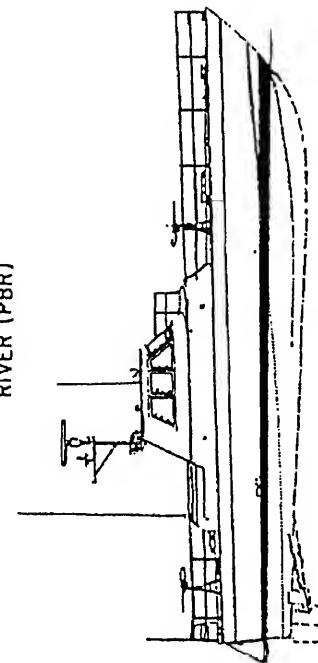
Figure 14-8.—Boats and service craft of the U.S. Navy.



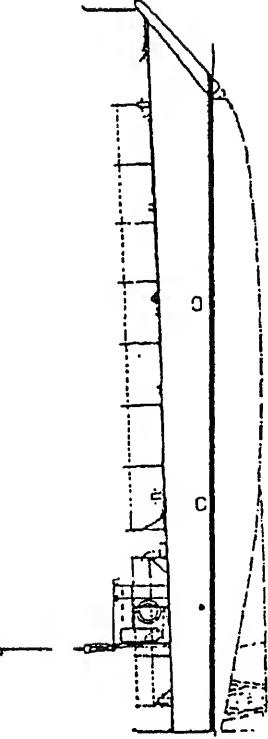
31-FOOT PATROL BOAT,
RIVER (PBR)



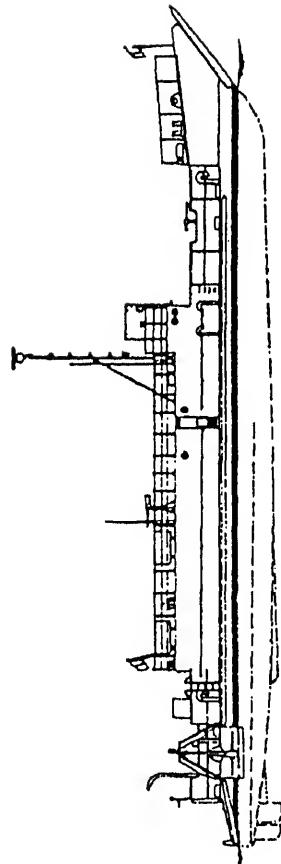
32-FOOT HARBOR SECURITY
PATROL BOAT (HSPB)



65-FOOT PATROL BOAT (PB)



74-FOOT LANDING CRAFT,
MECHANIZED (LCM-8)



135-FOOT LANDING CRAFT,
UTILITY (LCU)

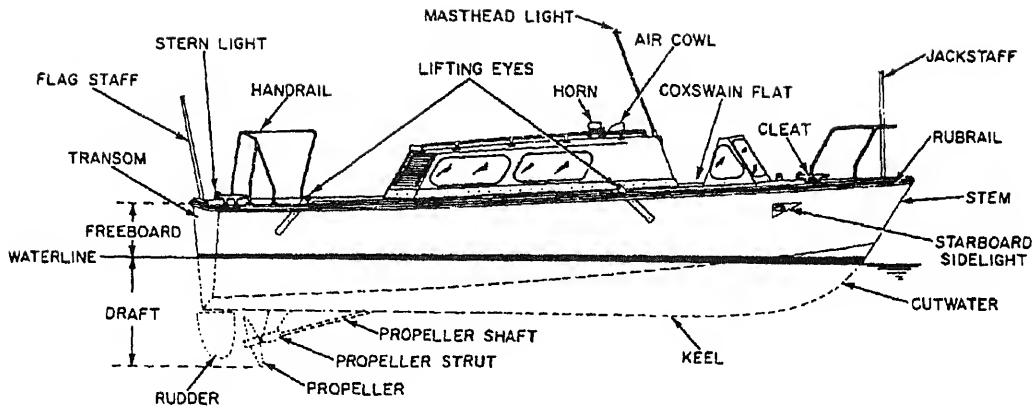


Figure 14-10.—Boat nomenclature.

5. Never needlessly distract the attention of crew members from their duties.
6. Do not sit on life jackets—to do so mats the filler and reduces buoyancy.
7. When told to do so, don your life jacket immediately.
8. Do not smoke in a boat.
9. During heavy weather, boat loads must be reduced. If told not to embark, or requested to disembark, do so without argument.
10. If a boat swamps or capsizes, don't panic. Fear is transmitted easily from person to person, and a terrified individual drowns easily. Never strike out alone. Stay with the boat or huddle with other passengers because a large group can be found much more easily than individual swimmers.

MARLINESPIKE SEAMANSHIP

Marlinspike seamanship is the art of handling and working all kinds of fiber and wire rope. *Rope* is a general term and can be applied to both fiber and wire rope. In the Navy, sailors generally refer to fiber rope as line, whereas wire rope is referred to as rope, wire rope, or just wire. More clearly defined, a line is a length of rope, either fiber or wire, that is in use or has been cut for a specific purpose, such as a lifeline, heaving line, or lead line. A few such lines have the word *rope* in their names (wheel rope, foot rope, bell rope).

In sailing ships, the fiber ropes that afforded the athwartship support for the masts were so numerous that they actually shrouded the tops of the masts from the view of an observer on deck, hence, the name "shroud." Stays, the fore and aft supports, were not so numerous, but there were several on each ship. Running rigging, tackles used to hoist and trim (adjust) the sails and handle cargo and other heavy weights, spanned the areas between sails, yards and decks, and yards and bulwarks. Lines secured the guns to the ship's sides and prevented them from rolling or recoiling across the gun decks. Gun tackles were used to haul the guns back into battery (firing position) after the guns were fired. Even the anchor cable was made of line. Obviously, line played a vital role in those ships.

Although the use of line has decreased considerably, it still is an important and expensive item in Navy ships. Therefore, every sailor must learn the proper use and care of all kinds of line and wire rope. We have, in general use in the Navy, line made of fiber (natural and artificial), wire rope made of steel, phosphor bronze, and other metal, and a combination of wire and fiber (spring-lay).

Lines made from a variety of natural fibers have seen service in the Navy, but most have been replaced by lines made of synthetic fibers. The two most commonly used lines made of natural fibers are marline (tarred hemp fibers) and manila (abaca plant fibers). Manila line was formerly authorized for use only where great strength was required, such as mooring lines, towing lines, and personnel transfers at sea. For most applications, nylon line (synthetic fiber) has replaced

manila. Nylon line is about 2 1/2 times as strong as manila of the same size.

Wire rope usually is substituted for line where the line is subjected to a great deal of wear, weathering, or heat, and where greater strength is required. Spring-lay is used for mooring lines, particularly at the bow and stern.

FIBER LINE

Any rope that is not wire is fiber rope. Except in a few instances where it is put to certain special uses, fiber rope is never called anything but line aboard ship.

Lines are classified by both their construction and their material. Nearly all line used in the Navy is three-strand.

Line is made by twisting fibers into threads (or yarns), threads into strands, and strands into rope. Taking the process further, ropes twisted together form a cable—an item seldom seen nowadays. Most of our lines are three-strand and right-laid; that is, as you look along a line, the twist is to the right. During construction of natural fiber line, a lubricant is added that also serves as a preservative.

Large line is measured by circumference, but line 1 3/4 inches and under in circumference, called small stuff, is identified by the number of threads in the line. Twenty-four thread is 1 1/2 inches in circumference. Inasmuch as the numbers of threads per strand are equal, thread numbers in a 3-strand line are divisible by 3—24, 21, 18, and so on, down to the smallest—6 thread (3/4 inch). Line from 1 3/4 inches to about 4 inches is manufactured in quarter-inch graduations. The length of all line and wire rope is usually measured in feet.

Following are tips on the care of natural fiber line. You should be thoroughly familiar with them and observe them at all times.

NEVER

1. Stow wet or damp line in an unventilated compartment nor cover it so that it cannot dry. Mildew will form and weaken the fibers.
2. Subject line to intense heat nor unnecessarily allow it to lie in the hot sun. The lubricant (natural oils) will dry out, thus shortening the useful life of the line.
3. Subject a line to loads exceeding its safe working load. To do so may not break the line,

but individual fibers will break, reducing the strength.

4. Allow line to bear on sharp edges nor run over rough surfaces. The line will be cut or worn, reducing the strength and useful life.
5. Scrub line. The lubricant will be washed away, and caustics in strong soap may harm the fibers.
6. Put a strain on a line with a kink in it.
7. Try to lubricate line. The lubricant you add may do more harm than good.

ALWAYS

1. Dry line before stowing it.
2. Protect line from weather when possible.
3. Use chafing gear (canvas, short lengths of old firehose, and so on) where line (or wire) runs over sharp edges or rough surfaces.
4. Slack off taut lines when it rains. Wet lines shrink, and if the line is taut, the resulting strain may be enough to break some of the fibers.
5. Coil right-laid line to the right (clockwise).
6. Inspect a line before using it. Overworked or overstrained line will have a bristly surface. Mildew can be seen, and it has a peculiar, unpleasant odor. Untwist the line so that the inner parts of the strands can be seen. If they have a dull grayish look, the line is unsafe.
7. Give line the care it deserves—someday your safety may depend on it.

NYLON LINE

Most of the tips for the care of natural fiber line should be observed with nylon line. Nylon, however, is not subject to mildew, and it may and should be scrubbed if it becomes slippery because of oil or grease.

A stretch of one-third its length is normal under safe working loads, and nylon stretches about 50 percent before breaking. Because of its elasticity, nylon line breaks with a decided snapback; therefore, stand well clear when it is under a heavy strain.

Snapback is extremely dangerous and has caused severe injuries and death. The utmost caution must be observed when working with or around all synthetic lines.

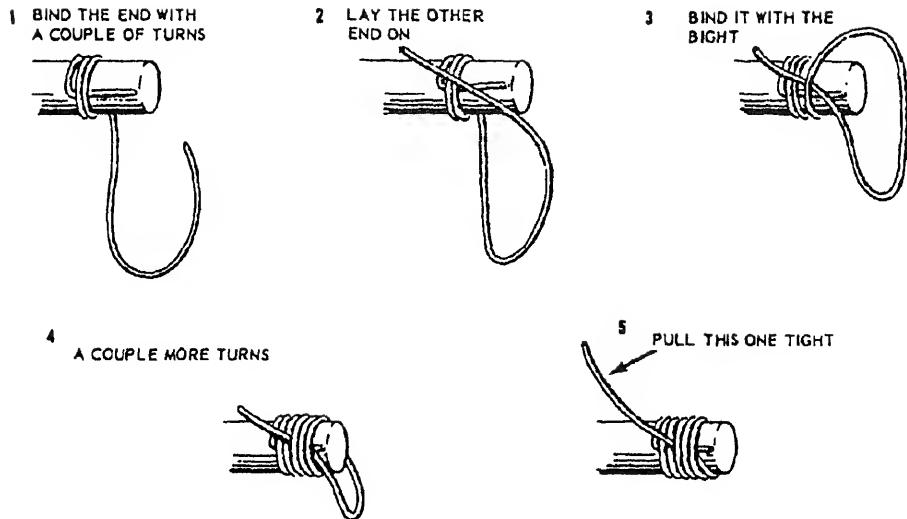


Figure 14-11.—Plain-whipping a line.

WIRE ROPE

The basic unit of wire rope construction is the individual wire, made of steel or other metal in various sizes. These wires are laid together to form strands. The number of wires in a strand varies according to the purpose for which the rope is intended. A number of strands are laid together to form the wire rope itself.

Wire rope is designated by the number of strands per rope and the number of wires per strand. Thus, a 6 by 19 rope will have 6 strands with 19 wires per strand. It may have the same outside diameter as a 6 by 37 wire rope, which will have 6 strands with 37 wires of much smaller size per strand. The more wires per strand, the more flexible the rope. Rope with fewer and larger wires per strand is more resistant to external abrasion.

The strands of the wire rope are laid up around a central core, which may be only a single wire, a single strand of wire, or hemp. A hemp core contributes flexibility, cushions the strands as the wire rope contracts under strain, and holds a portion of lubricant for continuous lubrication. A wire core is stronger than hemp and can be used where conditions such as high temperatures would damage a hemp core.

WHIPPINGS

Whippings are bindings on the ends of rope that keep the rope from unlaying. On line, whippings are made with a cord such as sail twine or with marline. The ends of all line must be whipped because of the frequent need for passing the ends through rings and pad eyes

and for reeving them through blocks. Unlaid and frayed ends of line are unsightly and unseamanlike and waste many feet of line. Knots or backsplices in the end of a line are not allowed, nor are friction tape or wire whippings. Knots and backsplices will jam in a block; friction tape will not hold for long; and wire may tear a line-handler's hands.

The most secure whipping (described in *Seaman*, NAVEDTRA 10120-J1) is made with the aid of a sail needle and palm. However, an excellent whipping can be made without a needle if the procedure shown in figure 14-11 is followed. First, lay the end of the whipping along the line, bind it down with a couple of turns, and snug up the edges. Then, lay the other end on in an opposite direction with the body portion of the whipping, continuing with several more turns from the bight of the whipping. The whipping length should be about equal to the diameter of the line being whipped. Snug up the edges and cut off the twine close to the line. This type of whipping is a temporary one. If the line is to be used frequently, a permanent whipping should be used.

KNOTS, BENDS, AND HITCHES

Except among seamen, *knot* is ordinarily used as an all-inclusive term, covering the more specific use of knots plus bends and hitches. Even seamen find it hard to clearly define the terms *knot*, *bend*, and *hitch* because their functions overlap in many instances. In general, however, the terms may be defined as follows:

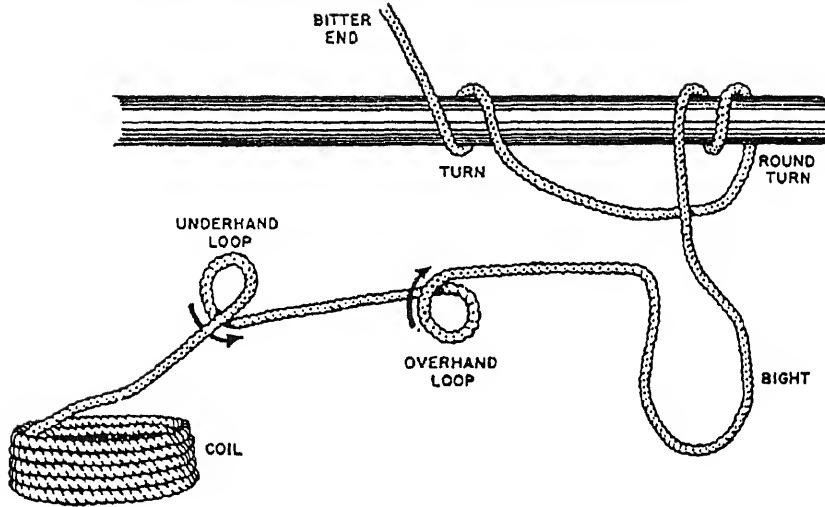


Figure 14-12.—Elements of knots, bends, and hitches.

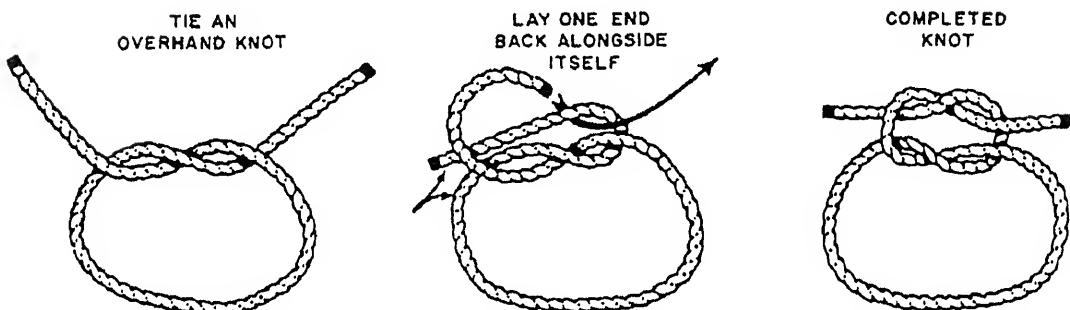


Figure 14-13.—Square knot.

Knots are used to form eyes or to secure a cord or line around an object such as a package. In other words, the line is bent to itself. Hitches are used to bend a line to or around an object such as a ring, spar, or stanchion. Bends are used to secure two lines together.

All Navy personnel should know the square knot, bowline, single and double becket bends, round turn and two half hitches, and clove hitch, and their uses. Before reading further, observe figure 14-12, which illustrates a few terms that make it easier for you to understand the following procedures.

Square Knot

The square knot, also known as the reef knot from its use in reefing sails, is quickly and easily made and has a great many uses. It will not slip, but it can jam under heavy strain. It can be loosened, however, by pulling on first one and then the other end. Figure 14-13 shows steps in making a square knot.

Bowline

The bowline, with its many variations, is one of the most useful knots. Its chief use is to form an eye, but it also can be used to secure a line to a pad eye or other ring around a stanchion or other object, or to bend two lines together.

To tie a bowline, you grasp the bitter end of the line in the right hand and the standing part in the left hand (opposite, if left-handed). Assuming you are using small stuff, the length of line between your hands should be about 2 feet. Throw an overhand loop counterclockwise near your left hand (clockwise near your right hand, if you are left-handed). Grasp the loop formed and hold it. Pass the bitter end up through the bottom of the loop as shown in figure 14-14, view A. Pull the bitter end up through the loop, and pass it around behind the standing part of the line (view B). Pass the bitter end down through the loop beside the line that was pulled up through the loop (view C). To tighten the knot, grasp the

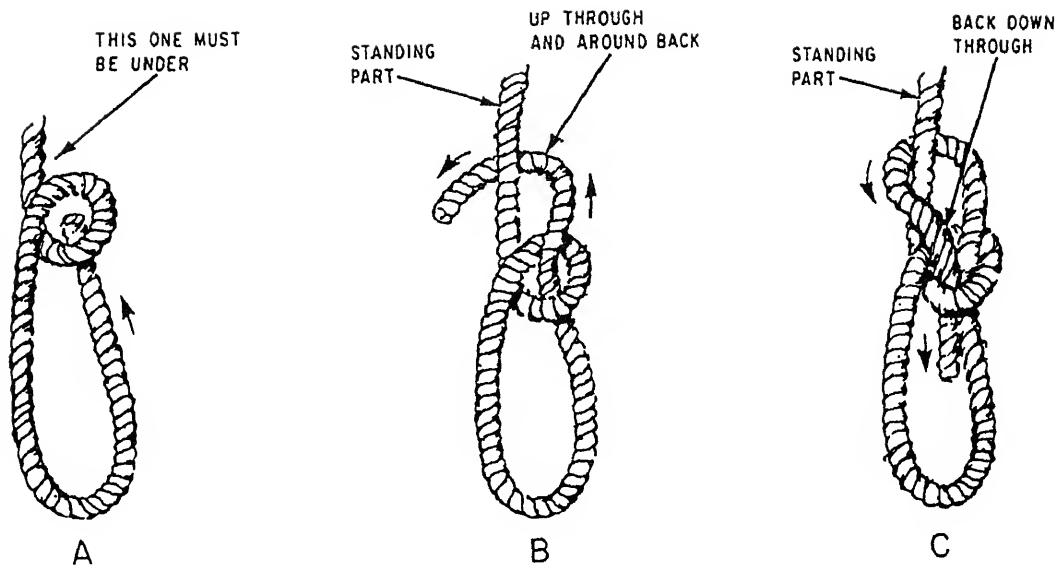


Figure 14-14.—Tying a bowline.

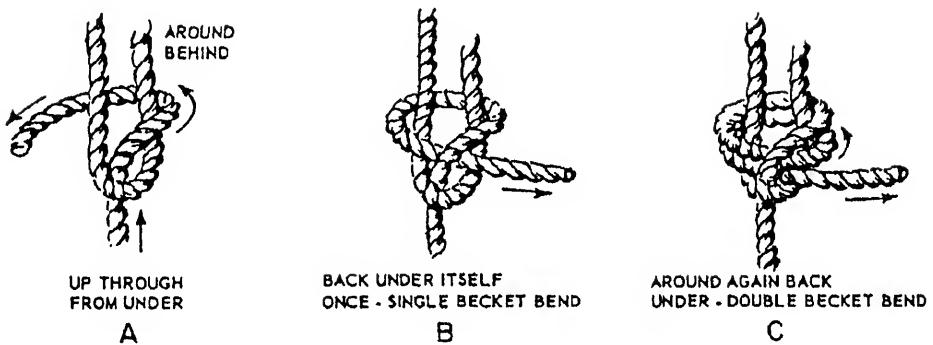


Figure 14-15.—Single and double becket bends.

standing part in one hand and the two lines passed through the loop with the other hand, and pull.

Becket Bend

The chief value of the becket bend is that it can be used to bend together two lines of different sizes. If there is a great difference in sizes or the strain on the line is to be great, always use a double becket bend.

To fashion a single becket bend, make a bight in one line and run the bitter end of the other line up through it, as shown in figure 14-15, view A. Pass the end around behind both parts of the bight and back under itself (view B). View C shows how you make a double becket bend

by simply taking another turn around the bight. (These bends are also known as sheet bends.)

Clove Hitch

The clove hitch can be quickly and easily tied in several ways, and it will hold as long as there is a strain on it. Once the strain is taken off, however, the hitch must be checked and tightened to prevent the bitter end from pulling out when the strain is reapplied. To make this checking and tightening unnecessary, you lash a clove hitch with a half hitch around the standing part.

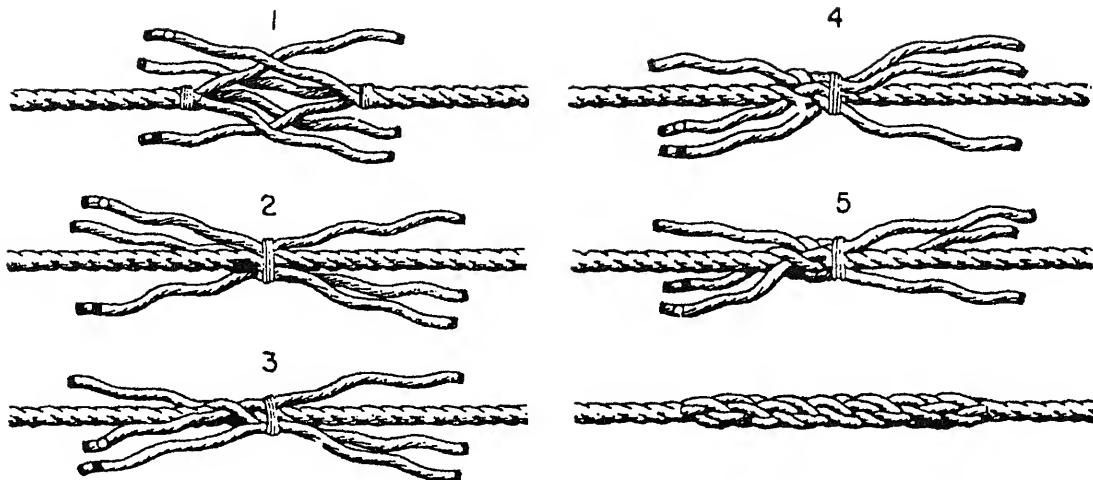


Figure 14-20.—Steps for making a short splice.

that they are interlaced, and follow the steps shown in figure 14-20.

With large lines, you must put on a temporary seizing where they join to keep them from suddenly coming apart. It is better to do that with small lines, too, until you get the hang of holding them together while you tuck.

Once your seizing is on, tuck over and under the same way you finish off an eye splice. Three tucks (natural fiber) or four tucks (synthetic fiber) on each side of the seizing are ample. Remove the seizing, cut off the ends of the strands, and melt them (if appropriate) as previously described.

SECURING FOR SEA

You are required to learn these knots, bends, and hitches so that you can use them when and where necessary. Rest assured that a person who goes to sea will find frequent use for them in securing equipment to prevent damage from rough waters. How the equipment is secured depends on the gear and the places of stowage. By observing the few tips that follow and by using a little common sense, you should be able to do a good job of securing your equipment for sea.

1. Use line strong enough to hold the gear. Make certain the line is in good condition.
2. Make fast the belay objects from at least two points that, preferably, are near the object.
3. Lash tightly all objects against something solid (such as the bulkhead).

4. Make the lashings taut so that the object will not "work" with the pitch and roll of the ship. Frequently check all lashings, and tighten as necessary.
5. Use chafing gear on sharp corners and rough surfaces.
6. Never make fast your lashings to electric cables or small slightly secured pipes, lagged pipes, door and hatch dogs or hinges, electric motors, lifeline stanchions, or anything not solidly secured.
7. Never block access to vents, fireplugs, switches, valves, doors, or hatches.

Never underestimate the force of the sea! Secure everything properly the first time and be safe.

SUMMARY

Becoming an accomplished seaman takes time, hard work, and patience. At some time in your career, you could be a member of a detail where handling lines will be required, or you may work with deck equipment and lines on a daily basis. Knowing how to use deck equipment and handle lines safely is essential.

Lines are used in the Navy for many reasons—from mooring aircraft carriers to securing bookshelves at sea. Without the wide variety of lines available to us, our way of doing our jobs would be extremely difficult. And having personnel trained in how to properly makeup, use, and maintain these lines would make these tasks even more hazardous.

Each piece of deck equipment or fitting has been designed for a specific purpose. A set of bits on a destroyer are used primarily for mooring, where a set of bits on a tug are used almost exclusively for towing. Becoming familiar with deck equipment and its use, and knowing how to makeup and use lines is not only a sign of good seamanship, but could in case of emergencies make the difference between saving or losing the ship or your shipmates.

Each person in the Navy is first and foremost a seaman and then a technician in his or her specific rate. Become proficient in seamanship. It may help you in

your daily duties and most certainly assist you in times of difficulty.

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CHAPTER 15

DAMAGE CONTROL

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Define the damage control organization.
2. Define the duties and responsibilities of repair parties.
3. Identify the location of shipboard damage control lockers.
4. Describe damage control lockers and their uses.
5. Describe the procedures for setting and maintaining fire and flooding boundaries.
6. Describe the procedures and identify the methods used in communications during damage control situations.
7. Define the meaning of compartmentation.
8. Describe compartmentation methods used in maintaining watertight integrity.
9. Define the procedure for breaking watertight integrity and darken ship.
10. Define the reasons for setting various material conditions of readiness.
11. Identify the material conditions of readiness.
12. Identify the various damage control fittings and equipment using the compartment checkoff list.
13. Describe the letters and symbols that designate the material conditions of readiness.
14. Explain the procedures for making a damage control closure log.
15. Describe the use and stowage of the emergency escape breathing devices.
16. Describe the use and function of the oxygen breathing apparatus.
17. Describe the conditions that could cause spontaneous combustion.
18. Explain why good housekeeping practices prevent fires.
19. Describe the procedure for reporting fires and other casualties.
20. Define the fire triangle used in fire fighting and fire prevention.
21. Identify the four classes of fire.
22. Recognize the extinguishing agent for each class of fire.
23. Identify the hazards of CO₂ and Halon when used as fire-extinguishing agents.
24. Recognize the dangers involved when handling a charged fire hose.
25. Explain the operation of and procedure for operating portable and installed fire-extinguishing systems.
26. Describe the dangers of operating an internal combustion engine in enclosed spaces.
27. Define the precautions used when handling fire extinguishers.
28. Describe the precautions used when storing fire extinguishers.
29. Describe the shipboard piping identification coding system.
30. Explain the purpose and precedence of shipboard emergency alarms.
31. Define the actions required when emergency alarms are sounded.

Damage control is an ALL-HANDS responsibility. The Navy has developed special equipment, techniques, and training to ensure all personnel in the command are capable of properly executing damage control procedures. The need for damage control is not limited to times of war. Several causes, such as fire, collision, or grounding, require that a high state of damage control readiness be maintained at all times.

In this chapter we discuss some of the means used to maintain a ship's watertight integrity (prevent flooding) and to prevent and fight fires. We will discuss markings on damage control fittings and how these fittings are used for setting different material conditions of readiness. We will also cover the four classes of fire, fire prevention measures, protective clothing, what equipment to use for fighting fires, how to use fire-fighting equipment, emergency alarms, and the actions required when an alarm is sounded. Chemical, biological, and radiological (CBR) defense is a part of the overall damage control objective. The complexity of CBR defense measures warrants individual attention and will be discussed in more detail in a later chapter.

DAMAGE CONTROL ORGANIZATION

Damage control (DC) is divided into two phases: ADMINISTRATIVE and BATTLE. The administrative phase requires the efforts of all hands in establishing and maintaining material readiness conditions. Material readiness is accomplished when DC fittings and equipment aboard ship are available and in proper working order to combat any emergency. Each department or division aboard ship has a damage control petty officer (DCPO) assigned to ensure that all emergency equipment and fittings, the compartment checkoff list, and so forth, are maintained in the proper working order. Each ship will also have a specified number of damage control lockers with a repair party assigned. These repair parties and repair locker personnel, along with the DCPOs, receive periodic training that ensures these personnel are capable of performing their assigned duties. Maintaining properly trained DCPOs, repair parties, and repair locker personnel is the responsibility of the engineer officer. However, the damage control assistant (DCA), under the engineer officer, coordinates the efforts of the repair parties in the control of damage and oversees all damage control associated training. When properly maintained, the administrative phase will reduce and confine initial damage. The battle phase starts when the ship has received actual damage. The DCA coordinates the efforts of the repair parties from damage control central

(DCC). These efforts may include fighting fires, controlling the ship's stability, and repairing battle damage. CBR defense measures are also used by repair party personnel but will be discussed in a later chapter.

DAMAGE CONTROL CENTRAL

The primary purpose of damage control central is to collect and compare reports from the various repair stations to determine the condition of the ship and the corrective action to be taken. The DCA is assigned to DCC, the nerve center and directing force of the entire damage control organization. Representatives of various shipboard divisions are also assigned to damage control central.

Reports from the repair parties are carefully checked in DCC so that immediate action can be taken to isolate damaged systems and to make emergency repairs in the most effective manner. Under the direction of the DCA, graphic records of the damage are made on various damage control diagrams and status boards as reports are received. For example, reports on flooding are recorded as they come in on a status board that indicates liquid distribution (fuel and water) before the damage occurred. With this information the stability and buoyancy of the ship can be estimated and the necessary corrective measures can be taken.

If DCC is destroyed or is for other reasons unable to retain control, designated repair stations take over the responsibilities of damage control central.

REPAIR PARTIES

All ships have at least one repair party; however, most have three or more. Each party has an officer, a chief petty officer, or a senior petty officer in charge who is called the repair locker leader or repair party leader. The makeup of each repair party depends upon the type of ship, the section of the ship assigned to the repair party, and the number of personnel available. The following chart lists the repair parties and their assigned area of responsibility:

<u>Repair Party</u>	<u>Location or Function</u>
Repair 1	Main deck repair
Repair 2	Forward repair
Repair 3	After repair
Repair 4	Midship repair
Repair 5	Propulsion repair
Repair 6	Ordnance
Repair 7	Gallery deck and island structure

Additionally, aircraft carriers and ships equipped for helicopter operations have crash and salvage teams and personnel trained to repair damaged aviation fuel piping systems. Carriers also have an explosive ordnance disposal (EOD) team. There is also an electronics casualty control team assigned aboard some classes of ships. These personnel are trained in electronics and electrical repair.

Repair Party Responsibilities

The specific purpose of each repair party depends on its area of responsibility. Each repair party must be capable of performing the following functions:

1. Make repairs to electrical and sound-powered telephone circuits, and rig casualty power.
2. Give first aid and transport injured personnel to battle dressing stations without seriously reducing the party's damage control capabilities.
3. Detect, identify, and measure radiation dose and dose rate intensities. Decontaminate the affected areas of nuclear, biological, and chemical attacks.
4. Identify, control, and extinguish all types of fires.
5. Evaluate and report correctly the extent of damage in its area of responsibility.
6. Control flooding.
7. Make repairs to various piping systems.
8. Be familiar with all damage control fittings in its assigned area, such as watertight doors, hatches, scuttles, ventilation systems, and various valves.

On large ships each party is subdivided into several units and scattered throughout the repair party's area of responsibility. That speeds up inspections and reduces the chances of an entire repair party becoming a casualty. Each unit establishes patrols normally consisting of three persons who determine material conditions in their sectors. These patrols report to their repair party headquarters, which, in turn, reports to DCC. When all hands are on board, major emergencies are met when the crew is at general quarters. In port, with all hands not on board, each duty section has a duty in-port fire party and rescue-and-assistance detail. If an emergency arises, all personnel not assigned specific duties fall in at quarters. These personnel are then available to assist the duty in-port fire party and rescue-and-assistance detail.

Repair Parties and Teams

Repair party leaders take charge of activities in their areas of responsibility, keeping DCC informed of the situation. A repair party may be subdivided, or certain actions may be the joint responsibility of two or more repair parties when necessary. Subdivisions of repair parties are designated by the number of the parent party followed by a letter; for example, repair 1 could be subdivided into three units: 1A, 1B, and 1C.

Purpose of Fire and Flooding Boundaries

Many ships have been lost as a result of naval action. Few of them sank as a direct result of the initial damage. Most of these damaged ships went down as a result of progressive flooding, fire, collapsing bulkheads, and human error. Had fire and flooding boundaries been properly set and the damage confined to its original area, many of these ships would have survived.

Flooding boundaries are established by locating the watertight bulkheads and decks closest to the flooded area. The next action is to advance the flooding boundaries toward the original point of damage. You close in on the damage from all sides.

Fire boundaries are established by keeping the bulkheads, overheads, and decks of the spaces around the fire cooled down. That is done by using sprays from a hose line or a water curtain or bag. You can look at a fire in a compartment as you would look at a fire in a metal box. Heat is pressed through all sides and the top and bottom of the metal box. Fire boundaries are set to prevent this heat from spreading the fire to adjacent compartments. Keeping the bulkheads, overheads, and decks cool also helps keep these structures from weakening and distorting.

DAMAGE CONTROL LOCKERS

The equipment and materials required for making battle damage repairs vary according to the nature of the damage. Since many different kinds of damage can occur aboard ship, you must know how to use a variety of equipment and materials.

A typical repair locker usually contains some or most of the following equipment, depending upon the ship's allowance: oxygen breathing apparatus (OBA) and six canisters for each OBA on the allowance; heat/flame retardant gloves and suit; tending lines; miner's lights; flashlights; sealed-beam lights; battle lanterns; extension lights; sounding rods; helmets; life jackets; hand tools; electrical tools; chain hoist and

straps; block and tackle; screw and hydraulic jacks; manila line; forcible entry tool; sound-powered phones; X40J cable and jack boxes; oxygen analyzer/indicator; combustible gas indicator (explosimeter); respirators; air line hose masks; emergency cutting outfit; electrical kits; rubber boots; rubber gloves; spare electrical cable; steel wedges; hose and pipe flanges; hose and pipe adapters; shoring kit and shoring batten; plugging kit; pipe-patching kit (soft patches); blower sleeves; prefabricated patches; gas masks; protective clothing; CBR defense-detection equipment and markers; decontamination equipment; fire rakes and ladders; and foam nozzles and extra fire hoses.

On ships that have subgroups, some of this equipment is stowed in the unit lockers. Additional damage control equipment is dispersed throughout the ship in designated areas. This equipment includes portable gasoline-driven fire pumps and hoses; fire hoses; nozzles; applicators; foam proportioners; in-line inductors; spare foam cans; CO₂ extinguishers; dry-chemical extinguishers; portable blowers; shallow-water diving gear; submersible pumps; eductors; shoring chests; shoring materials; plate patches; battle lanterns; and casualty power cables.

Checks should be made to see that all damage control equipment, tools, and materials on the allowance list are actually on board. That is done by comparing the ship's allowance list with an accurate and up-to-date inventory of onboard damage control equipment.

Checks should be made to see that all damage control equipment is stowed or installed in its designated location and that it is readily accessible. Emergencies can be handled much more effectively if equipment is available than if you have to waste time looking for it.

The equipment assigned to each repair station should be identified in such a way that items can be returned to the appropriate repair station after they have been used. A simple color marking system can be used. All tools and other items of equipment that belong to any one repair station should be marked with a stripe, band, or spot of an identifying color.

Damage control equipment must NOT be used for any purpose other than damage control. Because damage control equipment is located throughout the ship, some people are tempted to use it merely because it is handy. That must NOT be allowed. It is important to make all hands realize their lives may literally depend upon the ready availability of damage control equipment if an emergency should arise.

DAMAGE CONTROL COMMUNICATIONS

Communications are of vital importance to the damage control organization. Without good communications, the entire organization could break down and fail in its primary mission.

There are several means of communications aboard ship. Here we will discuss the general announcing system, the sound-powered telephones, and the messengers.

GENERAL ANNOUNCING SYSTEM

Although not a primary means of transmitting damage control information, the general announcing system (circuit 1MC) provides a means of transmitting orders, information, and alarm signals throughout the ship. It may be used, for instance, to announce the location of a bomb or shell hit. Its use for transmitting alarms is discussed later in this chapter.

INTERCOMMUNICATIONS SYSTEMS

Intercommunications (IC) systems are another means of damage control communications. The ship's electrical systems power these two-way, station-to-station circuits. These circuits provide direct communications with certain damage control and command stations, such as the 4MC (damage control circuit), 20MC (combat information center [CIC] circuit), 21MC (captain's command circuit), 22MC (radio central circuit), and 26MC (machinery control circuit).

DAMAGE CONTROL WIRE-FREE COMMUNICATIONS

Damage control wire-free communications (DC WIFCOM) is an improved method of damage control communications. This system uses modern hand-held radios specifically designed for shipboard use. This system allows instant communications between DCC, command and control, repair lockers, and personnel at the scene. The DC WIFCOM system will become the primary DC communications system when installed.

SOUND-POWERED TELEPHONES

Sound-powered (SP) telephones are currently, in most cases, the primary DC communications method. Principle shipboard battle stations, such as the bridge,

Table 15-1.—Special Classifications for Fittings

secondary conn, weapons, and damage control, are linked by primary and secondary SP circuits. All SP telephone circuits are designated by a combination of numbers and letters. Specific SP phone circuit information may be found in each ship's information book or the ship's damage control doctrine. When other communications systems are designated as the primary DC communications circuit, the SP phone circuits will be designated as the secondary system.

MESSENGERS

When other methods of communications have failed, messengers are used to relay orders and information. Messengers will deliver messages between repair lockers and DCC, or between DCC and the bridge, or between a number of other locations. Messengers should be familiar with the ship to get from one place to the other without delay. Messengers must be able to deliver oral messages without error.

WATERTIGHT INTEGRITY

As you learned in chapter 12, each naval ship is subdivided into many watertight compartments. Compartmentation stops the spread of water and poisonous fumes and aids in confining fires to one space. Compartmentation is effective in maintaining watertight integrity only as long as the right doors, hatches, and other fittings are closed and in a good state of preservation. All gaskets must be kept free of paint, oil, and grease to prevent deterioration; knife edges must be clean, and care must be taken not to damage them. Closures that do not work properly, in addition to fittings that should be closed but are left open, can lead to progressive flooding of one space after another, excessive damage to equipment, or even loss of the ship.

DAMAGE CONTROL CLASSIFICATIONS

Doors and fittings are marked with damage control (DC) symbols signifying when a particular fitting must be closed. Table 15-1 shows special classification symbols used for DC fittings. Fittings marked with a plain X, Y, or Z are discussed in the topic on material conditions of readiness. You must memorize the symbols and their meanings so that, if necessary, you can take the correct action for each material condition in effect. Damage control is an *all-hands* responsibility.

Markings	Purpose
W (William)	Classification W is applied to sea suction valves that supply water to the condensers and fire pumps and to other fittings and equipment necessary for fire protection and mobility. These fittings are normally open or running
Circle W	Ventilation fittings and certain access openings are marked (circles are black). Normally open, these fittings are closed only to prevent NBC contamination or smoke from entering a vent system.
Red Circle Z (Zebra)	Special fittings marked (circles are red) may be opened during long periods of general quarters to allow for preparation and distribution of food or for cooling vital spaces, such as magazines. When open, these fittings are guarded so that they can be closed immediately if necessary.
Black Circle X and Y	Fittings marked with or permit access to battle stations, are used for transfer of ammunition, or are part of vital systems. They may be opened without special permission but must be kept closed when not actually in use.
Dog Zebra	is applied to accesses to weather decks that are not equipped with light traps or door switches that will turn lights off when the access is opened during darkened ship conditions.

COMP'T NO. 2-108-1-L

NAME Crews Berthing (LSD Wing Wall)

ITEM	FITTING	NUMBER	LOCATION AND PURPOSE		CLASSIFICATION	DIVISION RESPONSIBLE
1.	<u>ACCESS</u> WT DOOR	2-108-1	Access to: 2-96-1-L		Z	REPIII
2.	WT DOOR	2-120-3	Access to: 2-120-1-L		Z	REPIII
3.	WT HATCH	2-108-1	Access to: 3-108-1-L		X	S
4.	<u>MISCELLANEOUS CLOSURES</u> ATC	2-109-1	In WTH 2-108-1 used to test: 3-108-1-L 3-103-3-A 3-115-1-A		X	E
5.	ATC	2-108-1	In WTD 2-108-1 used to test: 2-96-1-L		X	E
6.	<u>DRAINAGE</u> DECK SOCKET (remote)	2-112-1	Bilge eductor overboard discharge valve 5-112-1		X	M
7.	STC	2-118-1	Sound Ball 6-108-1-W		X	R
8.	GAGGED SCUPPER	2-109-1	Plumbing drain from 1-110-1-L		Z	REPIII
9.	<u>FIRE MAIN & SPRINKLING SYSTEM AND WASH DOWN</u> FMCOV	2-109-1	Cut out to FP 1-109-1		W	REPIII
10.	FMCOV	2-110-1	Cut out to Group IV magazine sprinkler		W	REPIII
11.	<u>FUEL OIL</u> STC	2-116-1	Sound F.O. & Ball. 6-108-3-F		X	B
12.	<u>REMOTE OPERATION</u> Remote start/stop switch	2-119-1	For exhaust blower 2-108-1		Z	REPIII
13.	<u>MISCELLANEOUS UNCLASSIFIED</u> Loud Speaker		General announcing 1MC			
14.	C.P. Riser Terminal	2-114-1	Casualty Power outlet			
15.	15lb CO ₂	2-119-1	Portable fire extinguisher			
16.	One OBA		In box at Fr. 110 stbd.			

Figure 15-1.--Compartment checkoff list.

Posted in a conspicuous place in every compartment aboard ship is a compartment checkoff list (fig. 15-1). It shows every DC fitting in that compartment; the compartment's classification, location or purpose, and number; and the division responsible for that

compartment's closure. By referring to the compartment checkoff list, anyone familiar with the Navy's method of numbering doors, hatches, and other fittings can locate the fittings and make the proper material condition settings in the compartment.

Table 15-2.-Material Conditions of Readiness

Condition	Circumstances	Close fittings marked
X-ray	In well-protected harbors; at home base during regular working hours	X, (X). These fittings are kept closed at all times except when actually in use.
Yoke	At sea; in port outside of regular working hours.	X, (X), Y, (Y), (X) and (Y) fittings may be opened for access, to pass ammunition, for inspection, etc
Zebra	General quarters; fire or flooding; when entering or leaving port in wartime.	X, (X), Y, (Y), Z, (Z). (Z) fittings may be opened to permit distribution of food, use of sanitary facilities, and ventilation of vital spaces. Must be guarded when open.

MATERIAL CONDITIONS OF READINESS

The maximum degree of watertightness is not maintained at all times because it would hamper the ship's normal routine. Instead, varying degrees of protection are achieved through the setting of different material conditions of readiness. All ships in the Navy are classed as "three-condition ships." The material conditions are X-ray, Yoke, and Zebra.

Condition X-ray provides the least protection. It is set when the ship is in no danger of attack, such as at anchor in a well-protected harbor or at a home port during regular working hours, to provide maximum freedom of movement throughout the ship. All X-ray fittings are closed when condition X-ray is set.

Condition Yoke is set at sea, in port during wartime, and in port during peacetime after working hours. All

X-ray and Yoke fittings are closed when condition Yoke is set.

Condition Zebra provides maximum protection in battle. It is set immediately, without orders, when general quarters is sounded and when the ship is entering and leaving port during wartime. It may also be set to control fire and flooding when the ship is not at general quarters. All X-ray, Yoke, and Zebra fittings are closed when condition Zebra is set. Table 15-2 summarizes the material conditions of readiness.

The setting of material conditions is normally carried out by the division or department responsible for the compartment and is accomplished by using the compartment checkoff lists.

Strict discipline must be maintained with regard to modifying material conditions. Permission must be obtained from the officer of the deck or from damage control central to alter the material condition setting in any way. A closure log is maintained at all times to show (1) where the existing material condition was broken; (2) the number and type of fitting and its classification; (3) the name, rate, and division of the person who requested permission to open or close the fitting; and (4) the date and time the fitting was opened or closed and later returned to its original setting. Remember, it is just as important to report the temporary closing of a fitting as it is to report the opening of one. If a Zebra hatch, for example, is dogged when general quarters is sounded, traffic to battle stations might be hampered.

DARKEN SHIP

A ship will operate in a darken ship condition when it must travel at night without being seen. This material condition of readiness is called Dog Zebra. For this material condition to be effective, all weather deck openings, such as doors, hatches, and ports, must be closed or shielded to prevent light from escaping. If you must transit the weather decks during darken ship, use a red-lensed flashlight. Since visibility under these conditions is very limited, use extreme caution.

LIFE SUPPORT DEVICES

All life support devices discussed in this chapter are designed to allow the wearers to breathe, and thereby to escape, continue work, and assist in the saving of the ship and their fellow crew members. Remember, the crew must save the ship or no one will be saved. Therefore, the purpose of this section of the chapter is to provide you with information on the air line hose

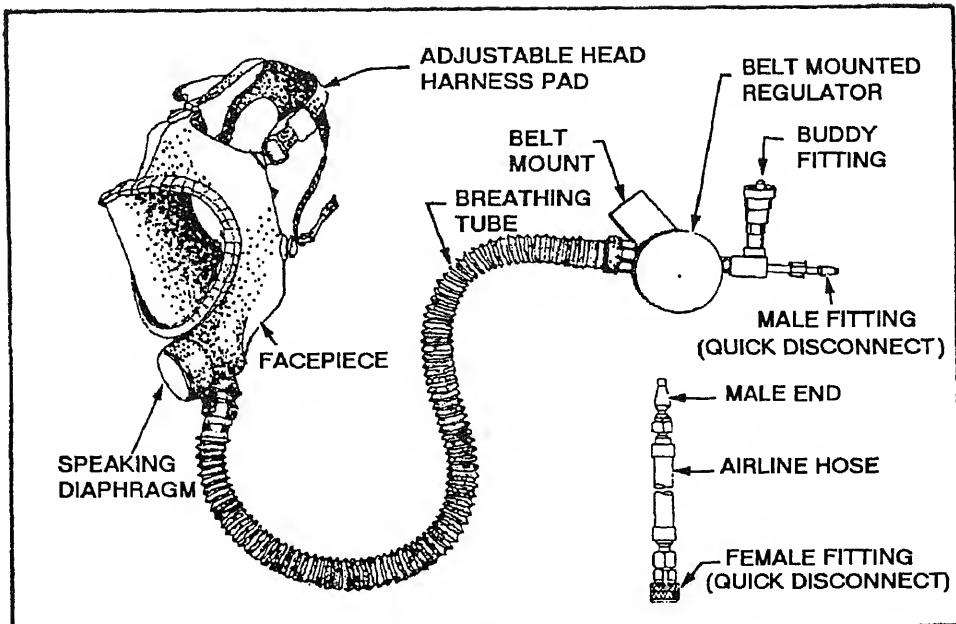


Figure 15-2.—Air line hose mask components.

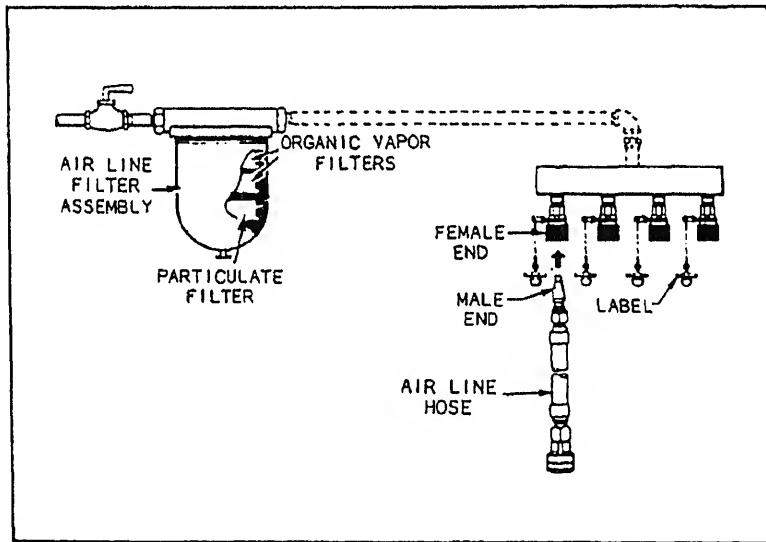


Figure 15-3.—Air line hose mask manifold.

mask, the emergency escape breathing device (EEBD), and the oxygen breathing apparatus (OBA).

AIR LINE HOSE MASKS

Air line hose masks (fig. 15-2) are part of the allowance of all ship's repair party lockers. They are provided for use in atmospheres that contain toxic vapors, fumes, gases, and dust. They may be used during emergency situations in which you must enter tanks, voids, pump rooms, storerooms, and so on. The air line hose mask may be used when a space must be entered

without testing for gas or without ventilating to free it from gas. It may also be used when a space must be entered for repair (not hot work), for rescue, or for inspection.

A 25-foot length of air line hose with male and female quick-disconnect fittings is also provided for connections between the demand regulator fitting and the ship's low-pressure air supply. The maximum length of hose that can be used is 250 feet. The manifold and filter assemblies are shown in figure 15-3.



15 MINUTE EMERGENCY ESCAPE BREATHING DEVICE

802300 Series OPERATING INSTRUCTIONS

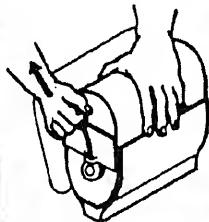
PATENT NO'S. 3906648, 4006708, 4039420

1: REMOVE UNIT FROM CASE.

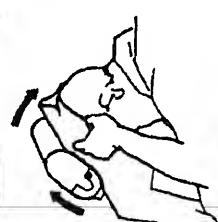
2: TEAR OFF RED PULL STRIP AND REMOVE UNIT FROM BAG.



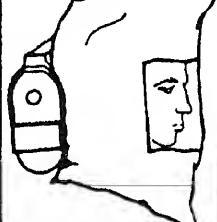
3: PULL OUT ACTUATION RING.



4: BEND DOWN AND GRASP HOOD OPENING WITH THUMBS AND PULL HOOD OVER HEAD.



5: PULL HOOD DOWN ON FOREHEAD TO ASSURE A SECURE FIT. CHECK NECK SEAL.



6: NORMAL OPERATION CAUSES AIR FLOW NOISE INSIDE THE HOOD. REMOVE HOOD WHEN NOISE STOPS!

IMPORTANT WARNING!

WARNING • IMPROPER USE

IMPROPER USE MAY CAUSE INJURY OR DEATH! USER
MUST HAVE ADEQUATE TRAINING PRIOR TO USE.

CAUTION • AVOID NECK SEAL LEAKAGE

BE SURE LONG HAIR OR CLOTHING
IS NOT CAUGHT IN SEAL



WARNING • OXYGEN



KEEP CIGARETTES AND FLAMES AWAY!

NOTICE

NORMAL OPERATION CAUSES HEAT ON SOME PARTS!

AVIA 526BC 12/77

SCOTT AVIATION, A Division of A-T-O Inc., LANCASTER, N.Y. 14086, U.S.A.

Printed in U.S.A.

Figure 15-4.—Emergency escape breathing device.

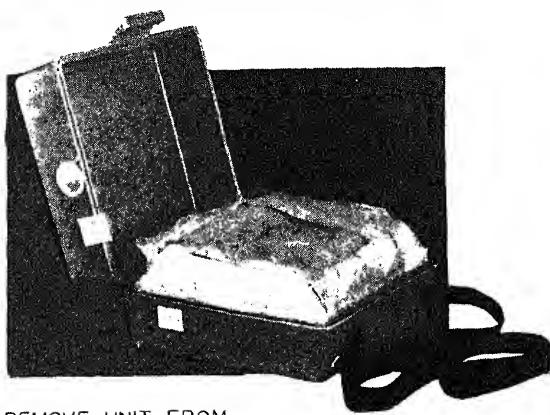
Safety precautions for the air line hose mask are as follows:

1. The wearer should become thoroughly trained in the use of the air line mask.
2. The mask assembly and ship's service air system must be in good condition.
3. The mask is NOT to be worn for fighting fires. The OBA is used for this purpose (it will be covered later in this chapter).
4. When smoke is present in the compartment containing the compressor, the compressor should be secured and another compressor in a smoke-free area should be activated.
5. Never attempt to use the regulators, manifolds, or other parts of this apparatus with pure oxygen. Traces of oil may be present in the apparatus. Oxygen, when brought in contact with oil or grease, reacts violently, and a serious explosion may result.

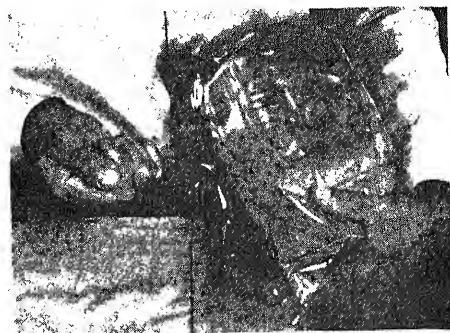
EMERGENCY ESCAPE BREATHING DEVICE

The emergency escape breathing device (EEBD), the eventual replacement for the survival support device (SSD), is designed to provide respiratory and eye protection in an atmosphere that will not support life. Studies have proven that most casualties are the result of smoke and toxic fumes and not the fire itself. For this reason, the EEBD was developed to give a 15-minute supply of breathable air. It is to be worn until you can get topside during evacuation from below deck spaces.

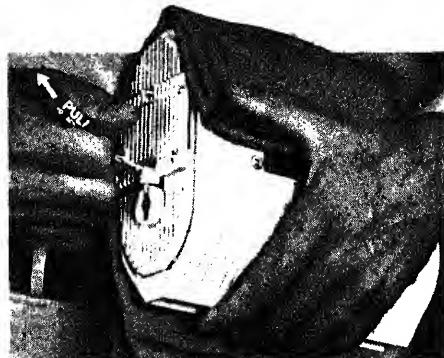
Primary components of the EEBD are a protective hood and life-support pack. The hood contains the breathable air and has a large visor and an elastic neck seal to prevent contaminants from entering the hood. The hood is fire resistant and will protect your face from open flame for about 6 seconds. The life-support pack consists of a chlorate candle, CO₂ scrubber, and venturi nozzle. The EEBD is stored in a protective case that has simple operating instructions on the outside (fig. 15-4).



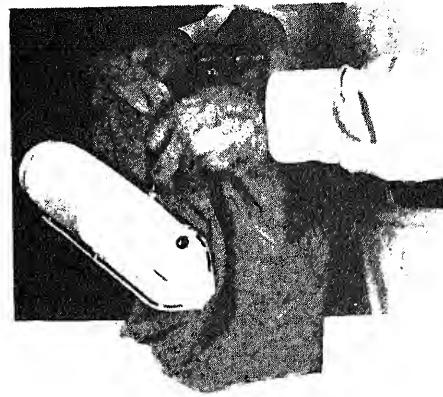
1 REMOVE UNIT FROM
STORAGE CONTAINER.



2 TEAR OFF RED PULL STRIP AND REMOVE
UNIT FROM PLASTIC PROTECTIVE
WRAPPER.



3 PULL ACTUATION RING IN THE DIRECTION
INDICATED.



4 HOLD THE DEVICE BY THE OPEN END OF
THE HOOD WITH THE LIFE SUPPORT PACK
AWAY FROM THE USER.

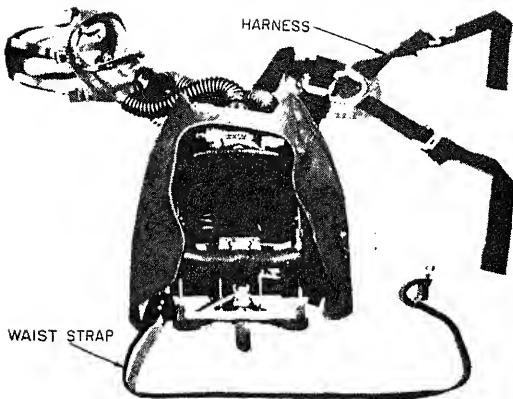


5 BEND OVER AND GRASP HOOD OPENING
WITH THUMBS AND PULL HOOD OVER HEAD.



6 RAISE TO STANDING POSITION AND ADJUST
HOOD AND LIFE SUPPORT PACK FOR MOST
COMFORTABLE FIT. CHECK NECK SEAL FOR
SECURE FIT.

Figure 15-5.-Steps in activating and donning the EEBD.



285.7
Figure 15-6.—Navy-type A-4 oxygen breathing apparatus.

and an attached carrying strap. The outside of the case has a tamper seal as a quick means of seeing if the unit has been opened.

EEBD Donning Procedures

Six simple steps used to activate and don the EEBD are as follows (fig. 15-5):

1. Open the case and remove the vacuum sealed bag.
2. Tear off the red pull strip and remove the unit from the bag.
3. Start the flow of oxygen by pulling out the ring marked "PULL TO ACTIVATE." Once the ring is pulled, you should hear the hiss of flowing gas. If you don't hear the hissing noise, that indicates the unit is probably defective.
4. Hold the hood with the life-support pack away from you; spread the elastic neck seal so your head will fit through the hole.
5. Bend down and hook the lower edge of the neck seal under your chin and pull the unit over your head. If you wear glasses, you may find it easier to be in an upright position.
6. Raise to a standing position and pull the front of the hood down until the head harness is tight on your forehead.

Check the neck seal for a secure fit by making sure that no hair or clothing is caught between the seal and your neck.

With the proper training you should be able to activate and don an EEBD in less than 30 seconds.

WARNING

Remember, when donning the EEBD, if you don't hear the hissing sound of oxygen being generated, discard the unit and get another.

Removal of the EEBD

To remove the EEBD, grasp the hood at the lower edge of the back and pull it forward over your head. When doing that, you should be especially careful not to touch the life-support pack because it will be hot. Since the unit cannot be recharged after being used, it must be disposed of by using your ship's operating instructions.

Maintenance of the EEBD consists of a simple semiannual inspection to ensure the device has not been tampered with, lost its vacuum seal, or exceeded its shelf life. A view port on the side of the carrying case provides visual access to the humidity sensor. The humidity sensor will indicate loss of the vacuum seal by a change in color from light blue to white or pink.

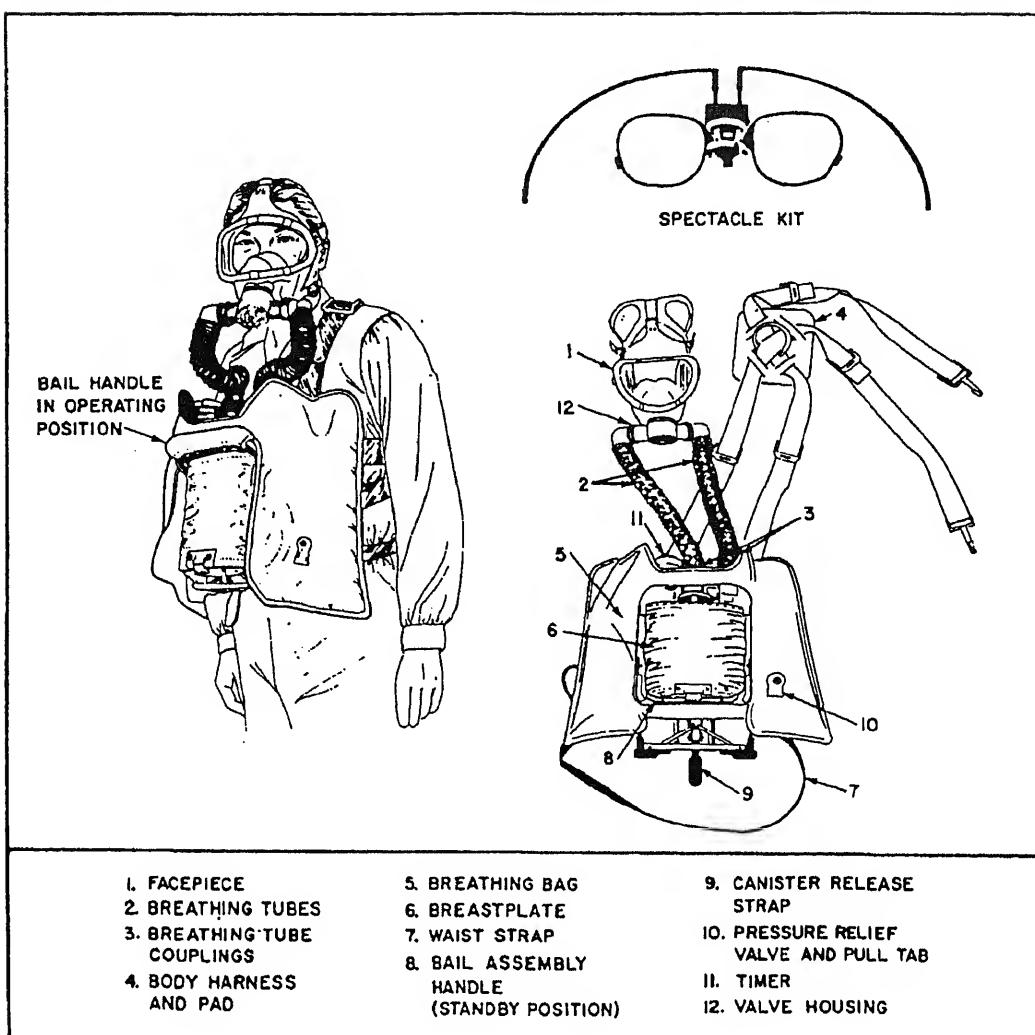
Remember, the EEBD is not to be used as fire-fighting gear or in place of the OBA. The EEBD was designed to be used in emergency situations to save your life.

NOTE: DO NOT smoke after immediate use of the EEBD because of oxygen saturation of the hair.

OXYGEN BREATHING APPARATUS (A-4)

The A-4 oxygen breathing apparatus (OBA) is shown in figure 15-6. When properly fitted and with a canister in position and operating, the OBA will prevent smoke or a toxic atmosphere from reaching the operator and will provide the wearer with a self-generating oxygen supply for 60 minutes. The OBA does not protect the wearer from toxic gases that can be absorbed through the skin; other protective clothing must be worn for that purpose. The 60-minute period (maximum) includes any time required to enter and leave the contaminated area. You will see later on that an additional time safety factor is used.

For personnel having eyeglasses, a spectacle kit is available for the installation of prescription lenses in the facepiece.



1. FACEPIECE
2. BREATHING TUBES
3. BREATHING TUBE COUPLINGS
4. BODY HARNESS AND PAD

5. BREATHING BAG
6. BREASTPLATE
7. WAIST STRAP
8. BAIL ASSEMBLY HANDLE (STANDBY POSITION)

9. CANISTER RELEASE STRAP
10. PRESSURE RELIEF VALVE AND PULL TAB TIMER
11. TIMER
12. VALVE HOUSING

Figure 15-7.-A-4 OBA.

The user must don the OBA (fig. 15-7) before entering the contaminated area. During the donning procedure the facepiece will be adjusted for proper seal; the breathing tubes attached and the handle raised to the upper, locked position (after insertion of the canister); the breathing bag inflated; the OBA tested for proper operation; and the timer set. The following describes the donning and operating procedures for the A-4 OBA.

You should be so familiar with the detailed donning procedures that you can perform them without reference to any written instruction.

A-4 Donning Procedures

Before donning the OBA, do a quick pre-don inspection. Check the bags, breathing tubes, and facepiece for tears, rips, or cracks. Also, check the breathing tubes for obstructions. Make sure the facepiece lens is clean. Check the bail, guard, and breastplate assembly for proper mechanical operation.

The steps used to don the OBA are as follows:

1. With one hand, grasp the facepiece at the combination valve housing and the apparatus at the



Figure 15-8.—Donning the OBA. 285.11



Figure 15-10.—Quick-starting canister.

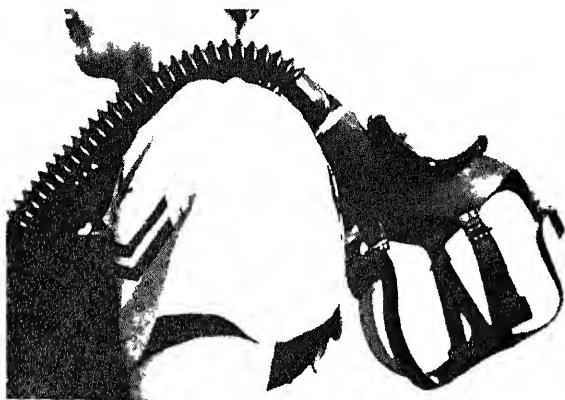


Figure 15-9.—OBA in the standby position. 285.11.3

operating handle (fig. 15-8). With the other hand, grasp the straps of the body harness and the body pad D ring and bring the pad and harness over your head while positioning the OBA on your chest. Then hold the facepiece and apparatus while holding the body harness and pad D ring in place.

2. Locate the two straps hanging free in the back. Attach the end of each strap to the ring on each side of the breastplate.

3. Position the breastplate on the chest so that the breathing tube connections are slightly below the shoulders and head movement is not restricted when the facepiece is donned. While holding the apparatus in this position, first adjust the two underarm straps and then adjust the two shoulder straps until the apparatus is comfortably fitted. (The harness pad should be located in the center of the back down from the neck for a comfortable fit.)



Figure 15-11.—Removing the tear-off cap. 285.11.5

4. Place the facepiece over your head in the standby position (fig. 15-9) until ready to activate the canister.

5. Snap the waist strap to the bracket on the lower side corner of the breastplate and adjust to hold the apparatus snugly to the body. Secure the excess loop of the waist strap by wrapping it under the secured part of the strap. Secure the ends of the lower body harness straps under the waist strap if they extend down to the waist after being adjusted.

6. Ensure the bail assembly is down and locked.

7. Install the quick-starting canister (fig. 15-10) in the following manner:

a. Remove the tear-off cap of the canister by pulling the tab backward and downward, exposing the copper foil seal. Discard the cap (fig. 15-11).

b. Remove the candle cover.

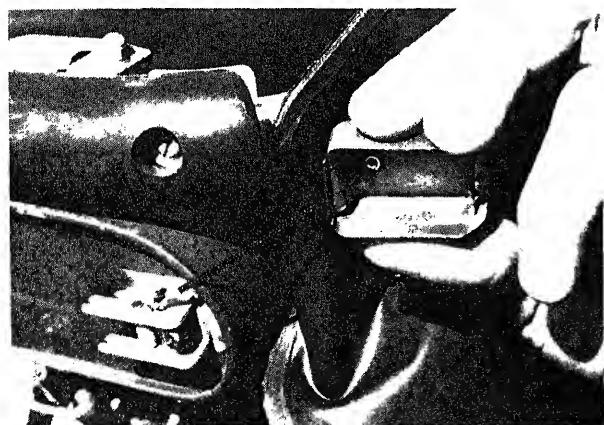
WARNING

When removing the candle cover, do not remove the cotter pin while pulling the lanyard. Removal of the cotter pin fires the candle and starts generating oxygen (fig. 15-12). If that happens while the copper foil is intact, internal pressure in the canister will build up, causing the copper foil or canister seam to rupture. Do not pull the cotter pin until the canister is inserted in the OBA and the bail assembly is up and locked.

c. Remove the canister candle cover by rotating the swivel plate 180°; push it down toward the center of the canister, leaving the cover dangling by the lanyard.

d. Insert the canister (with neck up and concave or ribbed side toward body) upward into the guard and breastplate assembly (fig. 15-13) until the canister is firmly retained by the bail. The canister is now locked in a standby position, with the copper foil seal still intact.

NOTE: If the copper foil seal is pierced when the canister is placed in the standby position, adjust the standby stop. Do not use an OBA that pierces the foil seal in the standby position.



285.11.6

Figure 15-12.—OBA candle.



285.13

Figure 15-13.—Inserting the canister.

8. Don and adjust the facepiece as follows:

a. Insert your chin into the chin stop of the facepiece.

b. Pull the headbands from the front of the facepiece over your head.

c. Make sure the straps lie flat against your head.

d. Tighten the lower or neck straps first. Pull both straps with the same amount of pressure at the same time.

e. Tighten the side straps, pulling both straps with the same amount of pressure at the same time. (Do not touch the forehead or front strap.)

f. Place both hands on the head harness pad (on the back of your head) and push it down toward your neck.

g. Repeat operations d and e.

h. Take up slack in the forehead or front strap if needed.

i. Make sure no hair is under the facepiece seal.

9. Test the facepiece for sealing by squeezing the corrugated breathing tubes tightly (fig. 15-14). Inhale gently so that the facepiece collapses slightly, and hold your breath for 10 seconds. The facepiece will remain collapsed while your breath is held provided the assembly is airtight. If you detect any leakage around the face seal, readjust the head harness straps. If you detect leakage other than face seal leakage, investigate



285.17

Figure 15-14.—Testing the OBA.

the condition and correct it. Test the facepiece for a proper seal before each use.

10. Make final adjustments on all four body harness straps so that you can look up or down without having the facepiece shift or catch on the timer or main valve housing.

11. If going into a standby or ready condition, you may loosen the lower facepiece straps and remove the facepiece. The facepiece can then be placed over your head and out of the way until you are ready to start the canister and put the OBA into operation.

STARTING THE CANISTER.—When you are ready to enter the contaminated area, start the canister in the following manner:

1. If your facepiece is in the standby position, put it on again before starting the canister. Retighten the lower straps and retest the facepiece for a good seal.

NOTE: The handle will not swing upward and snap into the top lever locks if the metal canister cap has not been removed.

2. Unlock the handle of the OBA, using both hands to depress the tabs from the bottom lock, and swing the handle upward until it snaps into the top lever locks. Test the handle to ensure the lock is secure by trying to push the handle forward without depressing the tabs.

3. Pull the lanyard on the canister straight out away from your body. That removes the cotter pin, fires the candle, and inflates the breathing bag with oxygen. A

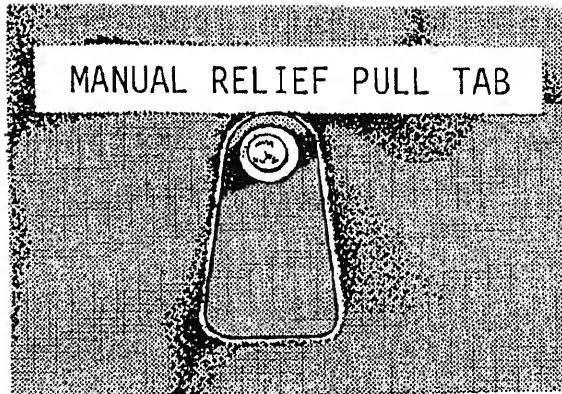


Figure 15-15.—Manual relief valve tab.

slight amount of harmless smoke may be present while the candle is burning.

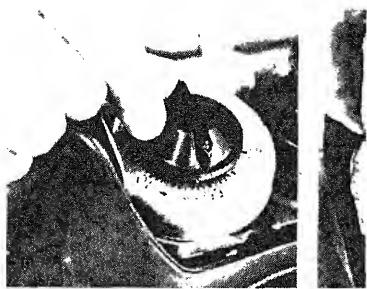
4. While the candle is filling the breathing bag, depress the breathing bag at the pull tab (fig. 15-7, item 10) with the left hand. At the same time, regrasp and seal off both breathing tubes with the right hand while pressing against the right side of the breathing bag with the right elbow. The bag must be compressed at the pull tab so that the relief valve does not vent during the test. This procedure tests the tube connectors, canister, and breathing bag for tightness. The bag must remain inflated; otherwise, the OBA may have a leak. You must check for the leak and correct it before using the OBA.

5. Breathe normally. The chemical reaction of the canister will generate more oxygen than is required. Any excess oxygen will be automatically vented by the relief valve in the bag when the bag reaches full capacity. A manual relief pull tab on the valve is provided should the valve stick closed over a long storage period. The manual relief pull tab is shown in figure 15-15.

CAUTION

Do not pull the breathing bag tab during normal use because the oxygen in the bags will leak into the atmosphere, causing loss of your breathing oxygen.

MANUAL STARTING SHOULD THE CANDLE MISFIRE.—If the candle does not fire, you must charge the breathing bag by inhaling fresh air and



285.19

Figure 15-16.—Setting the OBA timer.

discharging it into the apparatus. This method is not recommended unless there is a shortage of canisters on board. This procedure MUST occur in safe air, as follows:

1. Work one finger under the edge of the facepiece, stretching the mask slightly to break the seal.
2. Inhale while grasping and squeezing both breathing tubes with the other hand to draw external air from outside the facepiece.
3. Release the breathing tubes, remove your finger from the facepiece, and exhale into the facepiece.
4. Continue this cycle until the breathing bag is fully inflated. Deflate the breathing bag by placing pressure on the right-hand side until it is deflated. In this process, the moisture from your breath passes through the canister to start the chemical reaction. One filling of the bag is not usually sufficient to activate the canister fully.
5. Reinflate and deflate the breathing bag as directed in steps 1 through 4 at least five times. Now, without gloves, cautiously feel the bottom of the canister. Do not touch the bottom of the canister directly. If it is warm, oxygen is being generated, which means the apparatus is ready for the timer to be set and the operation check to begin. If the canister is not warm, repeat steps 1 through 4. (In lower temperatures, several cycles of inflating and deflating the bag may be required to start producing oxygen.)

SETTING THE TIMER.—To set the timer, grasp the knob on the timer, as shown in figure 15-16; turn it clockwise to 60 minutes; and then return it to 30 minutes. The timer is first set to 60 minutes to wind the alarm bell spring fully. When 30 minutes have expired, the warning bell will sound for 8 or more seconds. Even though the canister generates oxygen for 1 hour, you



285.20

Figure 15-17.—A-4 OBA in ready position.

must set the timer for 30 minutes to allow yourself 30 MINUTES ESCAPE TIME. Now you are ready to enter the hazardous area (fig. 15-17). Sometimes an OBA tending line may be required. The OBA tending line signals will be discussed later in this chapter.

Removing an Unused Canister

If the canister copper foil seal has not been punctured (candle has not fired), remove the canister by placing one hand on the bottom of the bail assembly and pulling the canister releasing strap.

NOTE: Gloves are not required in this case.

Protect the intact copper foil seal on this canister with one of the spare aluminum caps provided for this purpose.

Removing a Used Canister

Before removing a hot canister, protect your hands with approved protective gloves. Find a clean, dry area to drop the canister.

Once the canister has been used, remove the facepiece and put it over your head in the standby position. Then unlock the handle from the operation position and swing it down to the load and standby positions.

Next, spread your legs apart and lean the upper part of your body slightly forward. To release the used canister, pull the canister release strap. The canister will then drop out of the apparatus.

HAZARDS OF EXPENDED CANISTERS.—An expended OBA canister presents three hazards to any person who might carelessly handle one. The first, and least, of these is the **HEAT HAZARD**. The chemical reaction that takes place inside the canister while it is producing oxygen causes the exterior of the canister to become very hot.

The second hazard presented by an expended OBA canister is a **CHEMICAL HAZARD**. The chemicals in the OBA canister are similar in nature to caustic soda (lye). Serious, painful chemical burns will result if the chemicals get in your eyes or on your damp skin.

If the canister is intact, the chemicals normally cannot escape. However, if the side of the canister is punctured, chemicals may spill out. A person, unaware of the nature of these chemicals, could receive a serious burn.

The final, and perhaps most dangerous, hazard from an OBA canister is the **EXPLOSION HAZARD**. **PURE OXYGEN REACTS VIOLENTLY WHEN IT COMES IN CONTACT WITH GREASE OR OIL.** Since the chemicals in an OBA canister are oxygen-generating, they react in the same manner as oxygen, and the canister will explode.

DISPOSAL OF EXPENDED CANISTERS.—OBA canisters that require disposal should be disposed of following *Naval Ships Technical Manual*, chapter 077. The recommended procedures are explained below.

1. Place unusable and unfired canisters in an empty, clean metal bucket, and puncture the copper seal of the unusable or unfired canister. Set aside the bucket, and let the canister produce oxygen from the candles for at least 15 minutes.
2. After cooling enough to be handled, recap canisters to be disposed with a new metal cap.
3. Wrap canisters in double-poly bags. Stow the poly-wrapped canisters in a dry, oil-free environment until proper at-sea or shore-site disposal is possible. Stowage of the bags shall be carried out in a manner to protect against tearing and heat sources that could melt or ignite the bags.
4. If step 3 cannot be achieved, canisters shall be stowed in sealed, clean, dry, and oil-free metal

containers. Containers shall be of the open-head, closable-drum type with a gasket. Stow containers in a cool, oil-free space until proper at-sea or proper shore-site disposal is possible.

If your ship is at sea and more than 25 miles from shore, canisters may be jettisoned overboard following proper procedures.

WARNING

NEVER allow grease, oil, or water to enter the neck of the canister. Any of these liquids may cause a violent chemical reaction or explosion. The chemicals contained in the canister are injurious to skin and equipment.

Removing the OBA

Remove the OBA in the following manner:

1. Remove the facepiece by releasing the head straps at the buckles with your fingertips before pulling the headpiece off.

NOTE: If the canister is still in the OBA, place the facepiece over your head in the standby position and remove the canister. NEVER remove the OBA with a canister in place. If the canister is out, let the facepiece hang down in front of the OBA.

2. If the facepiece is in the standby position, remove it and let it hang in front of the OBA.
3. Loosen the waist strap; then unhook it.
4. Loosen the shoulder straps and unhook the harness at the upper corners of the breastplate assembly. Grasp the facepiece and operating handle with one hand and either shoulder harness (preferably at the D-ring connector) with your other hand and lift the OBA over your head.
5. If the OBA is wet or moist, wipe it down.
6. Always clean the OBA after each use. Wescodine disinfectant solution is recommended for this purpose.

OBA Operating Precautions

The following precautions must be observed during use of the OBA:

1. Use care to protect the breathing bag and the breathing tubes from damage. If the breathing bag, breathing tube, or facepiece is torn or pierced while working in an unsafe atmosphere, cover the damage with your hands as well as possible and quickly return to fresh air.
2. Change the canister in a clean atmosphere.
3. Never release the facepiece seal in an unsafe atmosphere, even if breathing becomes difficult. Check the breathing tubes to see if they are kinked and restricting air flow. If a kinked tube is not the problem, return to fresh air immediately and have the OBA thoroughly checked.
4. Set the timer for 30 minutes.
5. Never try to reuse a canister. Once the copper foil seal is pierced and the canister has been removed from the OBA, consider the canister expended.
6. Avoid touching the canister with bare hands; in use, the canister gets hot.
7. Never allow any foreign substance to be used on the OBA or enter into the neck of the canister, especially OIL, GASOLINE, WATER, and GREASE.
8. Make sure you are clean shaven; facial hair may prevent satisfactory facepiece sealing.

Safety Lines and Signals

A nylon-coated, steel safety line, called an OBA tending line, is available for wear by fire fighters, investigators, and rescue personnel. The line attaches to a D ring on the back of the OBA harness. It consists of 3/16-inch steel aircraft cable, which comes in 50-foot lengths. When two or more OBA wearers are in the same compartment, the tending lines should not be used because the lines may become entangled.

When the safety line is being worn, it must be tended constantly. The following signals are used by the OBA wearer and the tender. A simple code, known as OATH, should help you to memorize the signals.

Code	Signal	Meaning
O	1 pull	OK
A	2 pulls	Advance
T	3 pulls	Take up slack
H	4 pulls	Help

Never attach a lifeline to the waist. If a stricken person must be hauled or lifted out of a compartment, attach the line around the upper part of the body, under the arms. If the line were around the waist, it might interfere with the person's breathing or cause internal injuries.

Stowing the OBA

The only place the OBA should be stowed on board most ships is in a repair locker, unit locker, or OBA locker. These stations or lockers have individual shelves, one for each OBA.

OBA canisters are also stowed in repair lockers, unit lockers, and OBA canister lockers. The canisters are to be stowed concave side down.

FIRE AND FIRE FIGHTING

Fire is a constant threat aboard ship. All possible measures must be taken to prevent a fire from happening, or if one is started, to extinguish it quickly. Fires may start from several causes: spontaneous combustion, carelessness, hits by enemy shells, or collision. If the fire is not controlled quickly, it may cause more damage than the initial casualty and could cause the loss of the ship.

Although fighting fires is primarily handled by repair parties, you must learn all you can about fire fighting so that if called upon you will know what to do. The extent of damage and casualties from past shipboard fires was kept to a minimum because of the initial action taken by the person discovering the fire.

Most ships maintain an at-sea fire-fighting team or at-sea fire party. When this team is called away to fight a fire, it responds to all areas of the ship. If the at-sea fire party cannot control the fire, general quarters will be sounded.

SPONTANEOUS COMBUSTION

Fire, also called burning or combustion, is a rapid chemical reaction that results in the release of energy in the form of light and heat. Most spontaneous combustion involves very rapid oxidation; that is, the chemical reaction by which oxygen combines chemically with the burning material.

Such things as rags or papers soaked with oil or with paints or solvents are particularly subject to spontaneous combustion if they are stowed in confined spaces where

the heat caused by oxidation cannot be dissipated rapidly enough.

A fire involving combustible fuel or other material must have an ignition source, and the material must be hot enough to burn. The lowest temperature at which a flammable material gives off vapors that will burn when a flame or spark is applied is called the flash point. The fire point, which is usually a few degrees higher than the flash point, is the temperature at which the fuel will continue to burn after it has been ignited. The ignition or self-ignition point is the lowest temperature to which a material must be heated to give off vapors that will burn without the aid of a spark or flame. In other words, the ignition point is the temperature at which spontaneous combustion occurs. The ignition point is usually at a much higher temperature than the fire point.

A fire cannot exist without three things: (1) a combustible material, (2) a sufficiently high temperature, and (3) a supply of oxygen. Because of these three requirements, the process of fire is sometimes regarded as being a triangle, with the three sides consisting of fuel, heat, and oxygen. The control and extinguishment of fires are generally brought about by eliminating one side of the fire triangle; that is, by removing fuel, heat, or oxygen.

FIRE PREVENTION

You cannot win against a fire. You can fight the fire and you can hold down its damage; but some property will be destroyed and, all too often, people will be injured or killed. Time is always lost, productive work is stopped, and additional effort and materials are required to make repairs and to clean up the mess.

The objective, therefore, is to prevent fires from starting. Fire prevention is an all-hands, all-day, all-night, heads-up effort. A cigarette tossed in the wrong direction can cause as much damage as an enemy bomb. An oily wiping rag or a sparking tool can be as dangerous as an open flame in a gasoline depot.

Three general rules apply in fire prevention. Here we list the general rules, then we will go on to a listing of several of the more detailed rules. The three basic rules are as follows:

1. Keep things squared away—clean, shipshape, and in their right places.
2. Keep flammable materials (gasoline, oily rags, paint, and so on) away from fire-starting articles (torches, cigarettes, sparking equipment). Do not use

open flames near gasoline tanks; do not use flammable liquid near a welder's torch.

3. Keep the correct fire-fighting equipment in the right places and in good condition. Keep a CO₂ fire extinguisher near electrical equipment. Stow fire hoses within reach of the areas they are to serve. Make sure you have the right type of extinguisher on hand when performing welding or burning operations. If a fire does start, you want the right fire-fighting equipment on hand and ready to go into action.

Some of the more detailed rules are as follows:

1. Fuel oil: Fuel oil itself is nonexplosive, difficult to ignite, and normally not capable of spontaneous combustion. Fuel oil vapor, however, is explosive when mixed with air in the proper amounts. This vapor is heavier than air and will accumulate in bilges and bottoms of tanks where it may remain undiscovered until ignited by a naked light or spark. An explosive vapor could be present in an empty tank that has contained fuel oil unless the tank has been blown or washed out. Therefore, while oil is being transferred, no naked light, smoking, or electrical equipment that can cause a spark is permitted within 50 feet of an oil hose, a fuel tank, a compartment containing a fuel tank, or a pump. The carrying of any matches or cigarette lighters on your person while you are at work loading, unloading, or cleaning tanks is prohibited.

2. Static electricity: Static electricity is produced when liquids flow through a hose, are poured from one receptacle to another, are passed through a filter, or are splashed around in a tank. Enough static electricity can be accumulated to cause sparks that can result in fires and explosions.

When working in or near fuel tanks or magazines, never wear boots or shoes with exposed nails or clothing with metal buttons or fastenings. Also, beware of key chains, belt buckles, and tools in your pockets. In hazardous areas do not wear outer garments or undergarments made of wool, silk, or synthetic textiles, such as rayon and nylon. These materials can generate sufficient static electricity to cause ignition of flammable products.

3. Electrical equipment: Fumes from gasoline or other volatile flammables may be ignited by heat from the filaments in a shattered electric lamp, sparking in a motor, grounds or shorts in electric circuits, sparks from opening electric switches—including flashlights—and by static electricity sparks. Therefore, the following

requirements apply when any type of work with electricity is being carried on:

a. Gasoline, benzene, ether, and similar flammable cleaning fluids are never used on electrical equipment whether energized or de-energized.

b. Alcohol is not used for cleaning near electrical equipment from which a spark might be received.

c. Oil, grease, carbon dust, and so on, can become ignited by electrical arcing. Machinery must be kept absolutely clean and free of all such deposits.

4. Gasoline vapor: Gasoline vapor mixed with air in the proper amount forms an explosive mixture that can be set off by a slight spark or flame. A dangerous feature of gasoline vapor is that it may travel along a current of air for a considerable distance and then be ignited. The resulting flashback travels back to the source of supply and can cause an explosion or fire at some distance from the spark or flame.

If spills or leaks of gasoline occur, clean them up immediately. Wash gasoline-soaked ground with water or cover it with sand or dry earth. Watch the area until the flammable vapors are gone.

Keep gasoline containers (whether empty or full) closed tightly, and beware of empty gasoline containers—they may contain explosive fumes. The following is a brief summary of fire prevention rules:

GENERAL PRECAUTIONS

1. Be fire prevention conscious.
2. Keep fire-fighting equipment handy and in good working order.
3. Keep all gear properly stowed and spaces clean and shipshape.
4. Do not take fire or spark-producing items (matches, lighters, metal objects) into places where flammables are located.
5. If you have one or two of the fire factors (heat, oxygen, fuel) present, be careful that the others are not brought into the area.

REPORTING FIRES OR THE CASUALTY

Reporting damage or suspected damage is an all-hands responsibility. The speed, accuracy, and thoroughness of casualty reports are the key factors in reducing the damage that may be caused. If you become aware of a casualty (fire, smoke, explosion, flooding,

and so on), you must immediately report the incident to the bridge or damage control central (quarterdeck in port) by the fastest means. You must provide the following information:

- Type of casualty (fire, flooding, and so on)
- Location (compartment number, compartment noun name, frame, deck, port/starboard side, and so on)
- Your name, rate/rank, and telephone number (if needed)

In some cases, you can stop the damage. An example would be a small fire or smoke coming from an office trash can. You can use a readily available CO₂ bottle to extinguish the flame and/or smoke.

The point to make is that all casualties, including those seemingly minor ones that you may have corrected by yourself, must be reported to the officer of the deck (OOD) or damage control assistant (DCA).

THE FIRE TRIANGLE

The entire chemistry and physics of fire and burning, or combustion, can be simplified into a relationship between three components: fuel, heat (temperature), and oxygen (air). To have a fire in any combustible substance, each one of these components must be present to help each other. Picture these components in the form of a triangle, as shown in figure 15-18.

In this triangle, if the oxygen reacts with the fuel, it creates heat, which causes a draft or some other condition that takes in more oxygen and creates still more heat, and so on. Or the heat may cause more fuel to become available (such as causing gasoline to boil into vapor), which then takes more oxygen to burn and creates more heat, which then produces still more fuel,

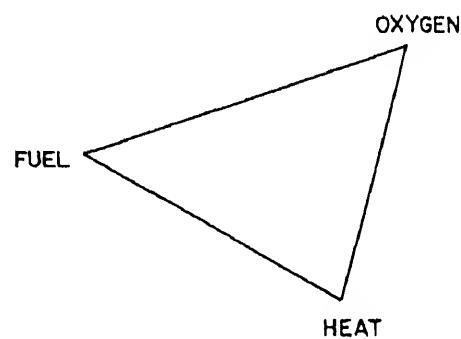


Figure 15-18.—The fire triangle.

and so on. The burning reaction can go in many different directions.

The modern science of fire fighting and fire extinguishment is based on the sides of the fire triangle and an uninhibited chain reaction of burning. Obviously, the fire fighter can remove one or more of the components to cause the burning to stop. The type of fire-fighting agent the fire fighter has at hand determines which component or components of the triangle will be removed.

Another way the fire fighter can stop the fire (and the combustion) is to place a screen between any two components of the triangle. If the fire fighter uses an agent as a temporary screen that breaks the triangle, the fire goes out. Obviously, the fire can quickly start up again if this method is used because each of the three necessary components is still there waiting to start the fire again once the screen is gone.

CLASSES OF FIRE

Fires are divided into four classifications that indicate the type of material burning and, therefore, the fire-fighting agents and the methods required to extinguish the fire.

1. Class A fires involve solid materials, such as wood, cloth, and paper, that leave an ash. Water is the primary means of extinguishing class A fires. Carbon dioxide (CO₂) may be used on small fires, but not on explosives. Fog must usually be used to knock down (cool) the flames of a large fire; then a solid stream is used to break up the material, particularly mattresses and similar articles, to cool it further.

2. Class B fires involve flammable liquids, such as oil, gasoline, and paint. The best extinguishing agent for class B fires is AFFF (aqueous film forming foam). Another good extinguishing agent is Halon 1301. The Halon 1301 systems are being installed for combating class B and C fires. For small fires or in a confined space like a paint locker, CO₂ is a good extinguisher. For large fires, other agents, such as a water fog or foam, must be used. Never use a solid water stream on a class B fire. The stream will simply penetrate the flammable liquid's surface, with no cooling effect; scatter the liquid; and thus spread the fire.

Class B fires involve the three temperature levels of flash point, fire point, and ignition point. A small spark may be all that is needed for ignition. Fire will flash across the surface but will not continue to burn; however, the flash may be sufficiently hot to ignite some other material or to injure personnel.

3. Class C fires are those associated with electrical or electronic equipment. The primary extinguishing agent is CO₂, but high-velocity fog may also be used as a last resort. Foam should not be used as it will damage the equipment and may present a shock hazard. A solid water stream should never be used. If at all possible, the equipment should first be de-energized.

4. Class D fires involve metals, such as magnesium, sodium, and titanium. These metals are used in the manufacture of certain parts of aircraft, missiles, electronic components, and other equipment. A typical example is the magnesium aircraft parachute flare. This flare burns at a temperature above 400°F with a brilliancy of 2 million candlepower. Water coming in contact with burning magnesium produces highly explosive hydrogen gas, so NEVER use a solid water stream on this type of fire. However, low-velocity fog can be used with little danger to put out the fire in a matter of seconds. Another method is to jettison the burning object overboard. One important safety precaution is to wear welder's goggles with very dark (No. 6) lenses to protect your eyes from the intense light of the fire.

Despite the most carefully observed safety precautions, a fire may still occur. When a fire is discovered, the fire must be reported immediately and fire-fighting operations must be started. The efforts of even one person may contain the fire until the arrival of the fire party. If the fire threatens to get out of control, then it must be prevented from spreading. All doors, hatches, and other openings in the fire area, including ventilation ducts, must be secured to confine the fire within a specific fire boundary. A primary fire boundary is established by cooling all bulkheads, decks, and overheads surrounding the fire area. Dewatering equipment (pumps) must be ready for immediate use because the amount of water used for fighting the fire and for cooling purposes may present a serious ship stability problem.

FIRE-FIGHTING AGENTS

Many substances, such as liquids, gases, and solids, are used as fire-fighting agents. The selection and use of these agents, whether water, aqueous film forming foam (AFFF), fog, CO₂, sand, or purple-potassium (chemical element K) powder (PKP), are dependent on the class of fire, its location and conditions, the extent of the fire's involvement, the air supply, and so on. A brief outline of each agent is included here to give you an overview of the actions of various agents against the different classes of fires. Of course, water is the most

valuable; the cheapest; and, in its various forms, the most studied fire-fighting agent.

For most fires, water is a cooling and diluting agent that is the most economical to use. As stated before, COOLING or REMOVING HEAT is the most common method of extinguishing fires.

Water as a Fire-fighting Agent

Water may be used to fight a fire in three different ways:

1. As a high-velocity water fog, which has some reach or throw, in the form of an umbrella-shaped pattern of small water particles.

2. As a low-velocity water fog (from an applicator), with very little reach, of very fine water particles in a wide umbrella-shaped cloud pattern.

3. As a straight, solid stream of water, used only on class A fires. After the fires are out, it is used to break up debris and to ensure saturation with water.

The shipboard fire fighter must remember that every gallon of water put on a fire must be pumped overboard or disposed of in some manner. For this reason, the straight, solid stream of water is seldom used unless the fire fighter needs its long reach or deep penetration.

SOLID STREAM (CLASS A FIRE).—A solid stream of water is used to break up, scatter, and penetrate smoldering class A fire material. However, the solid-stream, high-volume water discharge should be used as little as possible, especially in situations belowdecks where the water cannot drain into the sea. Normally, a solid stream of water is used ONLY on class A fires.

WARNING

The solid stream of water conducts electricity back to the fire fighter. Do not use it on fires in electrical equipment under any circumstance unless you disconnect all current and de-energize the equipment.

WATER FOG.—Water fog is perhaps the most useful heat-removing agent available to the shipboard fire fighter. However, the fire fighter must apply the fog directly to the area requiring cooling if the fog is to be effective.

Water fog protection is provided by the formation of a screen of water droplets between the fire fighter and the intense heat of the fire. As a result, the fire fighter can maneuver toward the base of the fire with greater safety. Not only does fog dilute or absorb various vapors but, to a certain extent, it also washes fumes and smoke from the atmosphere, thus protecting the fire fighter even more. The fire fighter can help clear smoke from the immediate area by occasionally directing the fog pattern upward for a few seconds.

In the case of a compartment that is completely, or almost completely, engulfed in flames, the fire fighter can greatly reduce the heat and flame before entering the compartment by spraying the water fog through the doors and air ports into the upper areas of the compartment. In the early stages of this type of fire, the greater part of the water fog turns into steam and reduces heat. The fire fighter should stand clear of any openings to a compartment because a violent outward rush of hot gases and air may occur as a result of their displacement by steam.

Under normal fire-fighting conditions, little or no danger exists that electric current will be carried by the water in a high-velocity fog. The all-purpose nozzle, or its applicator, constitutes a hazard if the fire fighter shifts to a solid stream or accidentally touches electrical equipment with the applicator. Even after the electric current has been shut off, a dangerous potential may remain, particularly in electronic equipment. Therefore, water fog is NOT recommended as an extinguishing agent for electrical fires, except as a last resort. If it is necessary to apply high-velocity water fog, DO NOT advance the nozzle any closer than 4 feet from the power source.

Because of the cooling qualities of the finely diffused water particles, fog can be used successfully on fuel oil fires. However, the danger of a reflash is present until the entire bulk of the fuel is cooled below the flash point.

Other Fire-fighting Agents

Other fire-fighting agents and their uses are AFFF, carbon dioxide, dry chemical, Halon, and the class D fire agents.

AFFF (CLASS B FIRE).—AFFF or light water is a concentrated mixture developed to combat class B fires. AFFF is a clear, slightly amber-colored liquid that floats on the surface of fuels and creates a film that prevents the escape of vapors and thereby causes a smothering action. The type used by the Navy is a 6 percent

concentration; that is, 6 parts AFFF mixed with 94 parts of water.

AFFF is applied (as a foam) to the fuel surface. As the AFFF solution drains from the foam, it forms a vaportight film on top of the fuel. Although AFFF can be used separately, it is generally used in conjunction with PKP. PKP and AFFF when used together are highly effective.

CARBON DIOXIDE (CLASS C FIRE).—Another method of extinguishing fires by oxygen displacement is to use carbon dioxide (CO₂). CO₂ is a dry, noncorrosive gas that does not damage machinery or other equipment. It is a nonconductor of electricity and can be used safely in fighting fires that present the hazard of electrical shock. If CO₂ is directed into a fire, it will starve the fire by displacing the oxygen supply that supports the fire.

DANGER

CO₂ causes frost to form. Frost is a conductor of electricity and can be a shock hazard.

The oxygen displacement action of CO₂ is temporary, however, and the fire fighter must remember that the fire will quickly reflash if oxygen is supplied again in the presence of an ignition source. The temperature of the burning material and its surroundings must be lowered below the material's ignition temperature if the fire is to remain extinguished.

In addition to its quick oxygen displacement action, CO₂ has other features that make it a popular agent for combating fires:

1. Normally, freezing temperatures do not affect the operation of the CO₂ extinguisher; however, temperatures above 130° F can cause excessive pressure in the cylinder. Cylinders located in machinery spaces usually carry a lower charge for this reason.

2. CO₂ is stowed in easily accessible spaces aboard ship in either portable extinguishers or in permanent hose-and-reel and fixed-flooding installations.

DRY-CHEMICAL EXTINGUISHING AGENTS.—The chemical action and extinguishing mechanism of dry-chemical agents are complex. In general, dry-chemical agents halt the production of the active fire-producing elements in a fire by putting a temporary screen between the heat, the fuel, and the

oxygen. This action halts the union of the three components just long enough for the flames to be extinguished.

The dry-chemical agent used by the Navy is purple-K powder (potassium bicarbonate), usually referred to as PKP, which is provided primarily for use on class B fires. PKP is also safe and effective on class C fires, but it should NOT be used instead of CO₂ unless absolutely necessary, as it may foul electronic components.

For internal fires in gas turbines and aircraft engines, PKP should be used only as a last resort when efforts to control the fire with CO₂ have failed. PKP leaves a residue that, under some circumstances, cannot be completely removed without disassembly of the equipment.

HALON.—Halon fixed-flooding systems are installed in various flammable liquid storerooms and in machinery and electronic spaces aboard ship. Halon is designed to flood manned spaces with a 5 to 7 percent concentration and unmanned spaces with a 20 percent concentration. The spaces must be evacuated. Halon extinguishes class B and C fires by a unique and complex interaction with the molecular structure of oxygen. This agent is very expensive and should be used only when other extinguishing agents have failed.

EXTINGUISHING AGENTS (CLASS D FIRE).—Water that comes into contact with burning magnesium produces highly explosive hydrogen gas; therefore, NEVER USE A SOLID STREAM OF WATER on this type of fire. On the other hand, high-velocity fog can be used with little danger to extinguish the fire in a matter of seconds. (You may also use dry sand on a class D fire.) As mentioned before, you can also jettison the burning material overboard. One important safety precaution is to wear welder's goggles with very dark No. 6 lenses to protect your eyes from the intense light of the fire.

Table 15-3 summarizes the types of fires and their extinguishing agents.

FIRE-FIGHTING EQUIPMENT

Because of the large amounts of explosives, fuels, and other flammable materials aboard ship, getting a fire under control and extinguished is of primary importance. You may be called upon to serve on a fire party, or you may be the only person present to combat a fire. If you do not know how to use the equipment available or what equipment to use, the results could be

Table 15-3.—Summary of Classes of Fires and Extinguishing Agents

Combustible	Class of Fire	Extinguishing Agent
Woodwork, bedding, clothes, combustible stores	A	1. Fixed water sprinkling. 2. High-velocity fog. 3. Solid water stream. 4. Foam. 5. Dry chemical. 6. CO ₂ .
Explosives, propellants	A	1. Magazine sprinkling. 2. Solid water stream or high velocity fog. 3. Foam.
Paints, spirits, flammable liquid stores	B	1. CO ₂ (fixed system). 2. Foam (AFFF). 3. Installed sprinkling system. 4. High-velocity fog. 5. PKP. 6. CO ₂ .
Gasoline	B	1. Foam (AFFF). 2. CO ₂ (fixed). 3. Water sprinkling system. 4. PKP.
Fuel oil, JP-5, diesel oil, kerosene	B	1. Foam (AFFF). 2. PKP. 3. Water sprinkling. 4. High-velocity fog. 5. CO ₂ (fixed system).
Electrical and radio apparatus	C	1. CO ₂ (portable or hose reel). 2. High-velocity fog. 3. Fog foam or dry chemical (only if CO ₂ not available).
Magnesium alloys	D	1. Jettison overboard. 2. Low-velocity fog.

disastrous. In the topics that follow, we will describe basic fire-fighting equipment and present some important safety precautions to be followed.

Fire Main Systems

The fire main system is designed primarily to deliver seawater to fireplugs and sprinkler systems, with a secondary purpose of supplying water to flushing systems and to auxiliary machinery as a coolant.

The piping is usually 4 inches or larger in diameter and is either a single line running fore and aft near the centerline (on small ships) or a loop system (on large ships) running along each side of the

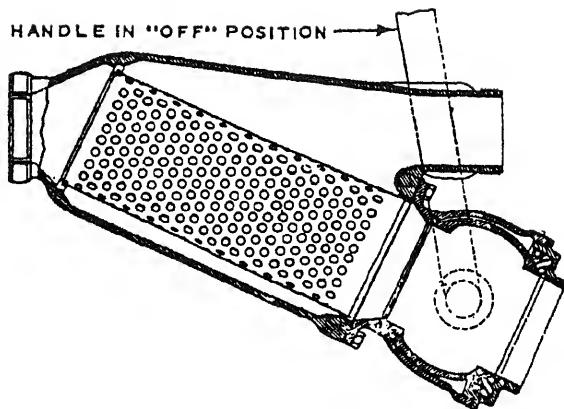


Figure 15-19.—Quick-cleaning strainer.

ship (inside protective bulkheads or armor). In both systems the fire main is located on or below the damage control deck. There are many cross-connection points and shutoff valves throughout the system to permit isolating (jumping) any damaged sections of piping.

On the larger ships most fireplug outlets are 2 1/2 inches in diameter. A wye gate (shown in fig. 15-29) provides two 1 1/2-inch outlets. Destroyers and smaller ships use 1 1/2-inch fireplug outlets.

A quick-cleaning strainer is attached directly to the fireplug and to it is attached a 2 1/2-inch hose or a wye gate. The strainer (fig. 15-19) collects foreign matter, such as marine growth and other debris that otherwise would pass through the hose and clog the nozzle. When the handle is in the OPEN position (parallel to the strainer), the water is forced through the strainer and into the hose. When the handle is in the OFF position, the strainer is open and the water flushes accumulated matter out of the strainer.

Installed 50-Pound CO₂ Extinguishers

CO₂ extinguishers are installed in ships to provide a dependable and readily available means of flooding (or partially flooding) certain areas that present unusual fire hazards. An installed CO₂ extinguishing system has one or more 50-pound cylinders; the cylinders may be installed singly or in banks of two or more. Except for size and releasing mechanisms, the 50-pound cylinders are essentially the same as the 15-pound portable cylinders.

There are two types of installed CO₂ systems: the flooding system and the hose-and-reel installation. The flooding system is used in spaces not normally occupied by personnel and are located in areas such as paint and

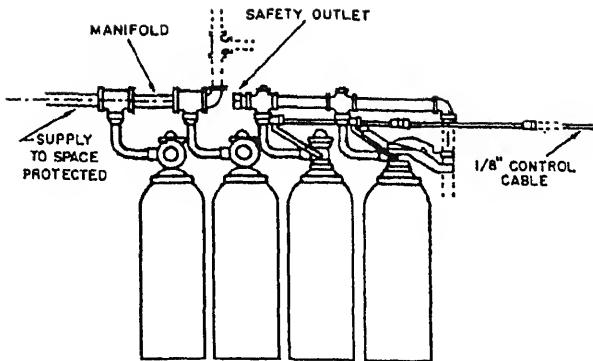


Figure 15-20.—CO₂ flooding system.

inflammable liquid storerooms and paint mixing and issue rooms. The hose-and-reel installation is normally located in machinery spaces, such as engine rooms and firerooms.

The CO₂ flooding system (fig. 15-20) consists of one or more cylinders connected by piping from the

valve outlets to a manifold. Fixed piping leads from the manifold to various areas of the compartment to be flooded. Cables run from the valve control mechanisms to pull boxes located outside the compartment containing the cylinders. To release the CO₂, break the glass in the front of the pull box and pull the handle.

The hose-and-reel installation consists of two cylinders: a length of special CO₂ hose coiled on a reel and a horn-shaped nonconducting nozzle equipped with a second control valve. When the hose and reel are both installed near the normal access, each of the two cylinders is provided with an individual on-off control. If the cylinders are not located near the hose reel, remote control pull boxes are provided at the hose reel for discharging each cylinder individually.

Before you operate a CO₂ flooding system, make sure all personnel have been evacuated from the compartment in question.

To operate a hose-and-reel system that has a length of hose for discharging the CO₂, proceed as follows:

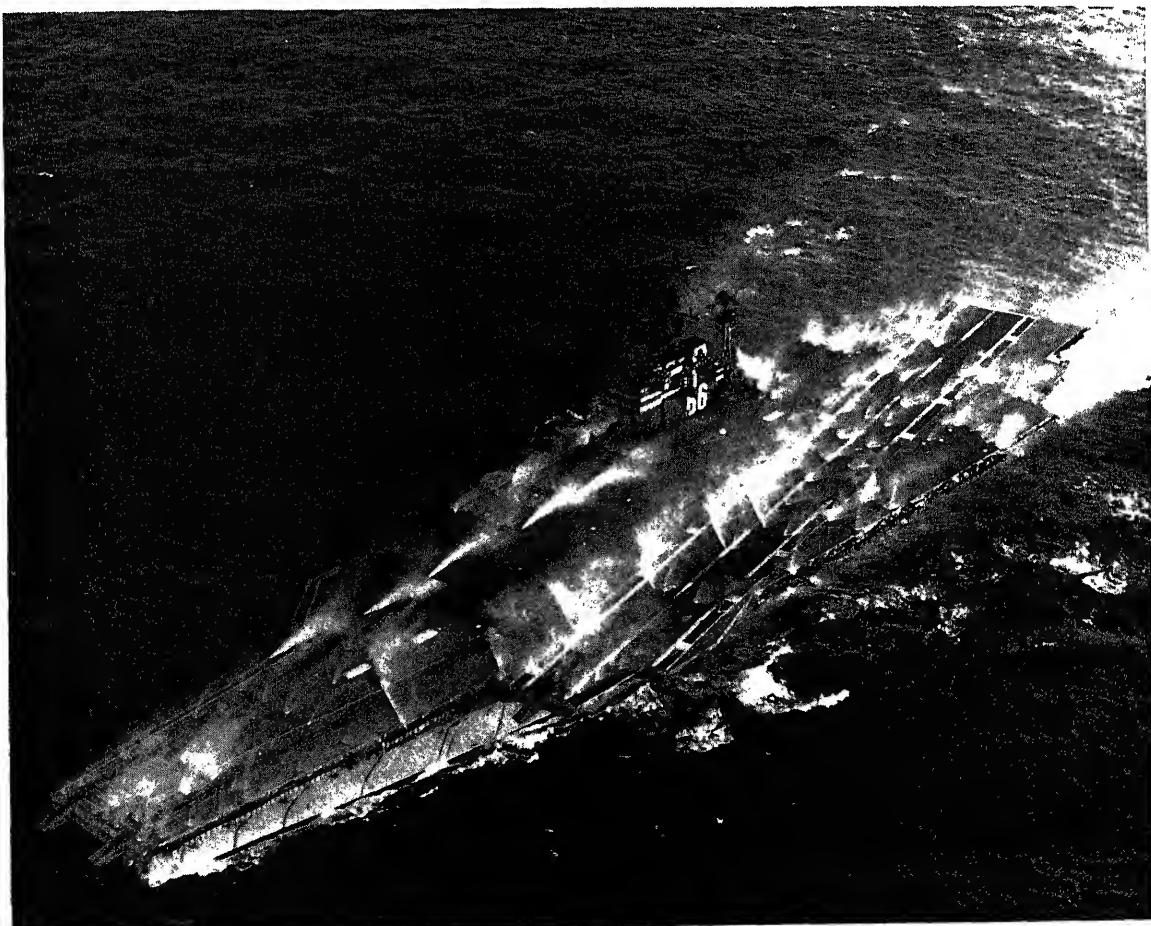


Figure 15-21.—Water washdown system on USS America (CV-66).

1. If the fire is an electrical fire, secure the electrical circuits.
2. Make sure the horn valve is in the CLOSED position.
3. Open the control valve on the cylinder intended for use.
4. Unreel the hose and run the horn to the point of attack on the fire.
5. Open the horn valve by turning the lever or by depressing the squeeze grip.
6. Direct the CO₂ discharge toward the base of the flame, not toward the center of the flame.

Operating an installed CO₂ system that has a pipe system of distribution is simple; you simply break the glass on the pull box and pull the handle of the cable leading to the CO₂ cylinders.

CAUTION

The very qualities that make CO₂ a valuable fire-extinguishing agent also make it dangerous to life. If there is insufficient oxygen in a compartment to sustain a fire, then there is not enough oxygen to sustain life. Do not enter a CO₂ flooded compartment without protection unless the ventilation system has been operating for at least 15 minutes.

A CO₂ flooded compartment may be entered if you use an approved Navy oxygen breathing apparatus (OBA) or hose (air line) mask. Otherwise, you should not work in the compartment until it has been tested for oxygen content. Do not use any type of gas mask in place of an OBA because a gas mask merely filters the air and does not provide the oxygen you need.

Water Washdown System

The water washdown system is a mechanical system that consists of piping and nozzles used to spray water over all the weather surfaces of the ship (fig. 15-21). Water is supplied by the fire main. Although the water washdown system is actually a preventive measure against CBR contamination, it can also be used for fighting weather deck fires.

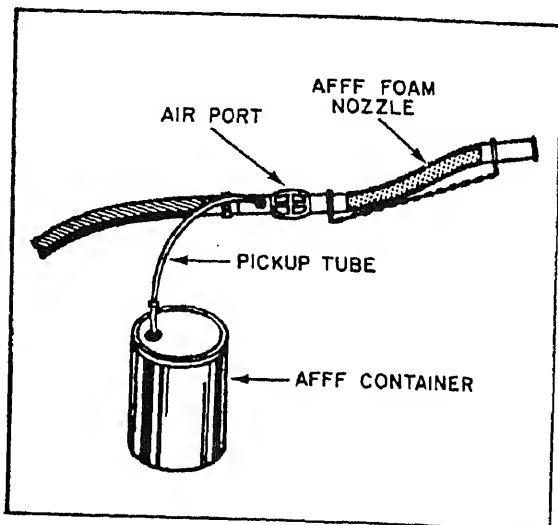


Figure 15-22.—Navy pickup unit (NPU) nozzle assembly.

Sprinkler Systems

Sprinkler systems are installed in magazines, ammunition handling rooms, spaces where flammable materials are stored, and in hangar bays of aircraft carriers. Water for these systems is piped from the fire main. Some sprinkler systems are automatically triggered when the protected compartment reaches a certain temperature, but most are operated either locally or from remote locations by manually controlled valves.

Foam Equipment

One type of foam-producing equipment used with AFFF is the Navy pickup unit (NPU) nozzle assembly shown in figure 15-22. The foam nozzle is a 21-inch length of 2-inch-diameter flexible metal hose with a suction chamber and an air port at the pump end. The pickup tube siphons the correct amount of foam concentrate into the water stream. As the stream crosses the air port, air is mixed with the solution to produce the foam. AFFF concentrate comes in 5-gallon cans and will produce about 660 gallons of foam.

The in-line inductor is designed for use with a maximum of 150 feet of 1 1/2-inch fire hose and the 95 gallon per minute vari-nozzle. It produces a 94 percent to 6 percent water-to-foam ratio at the nozzle. The advantage over the NPU is greater range and an adjustable stream.

Fire-fighting Pump

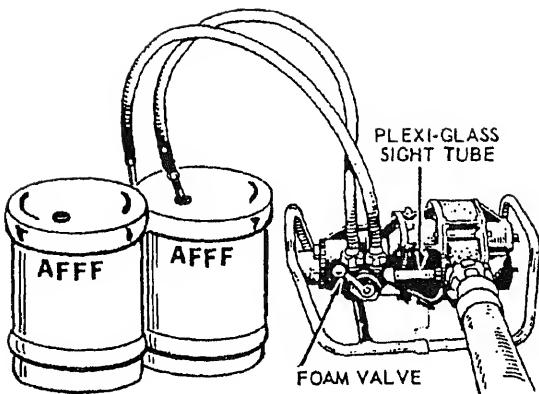


Figure 15-23.-FP-180 water motor proportioner.

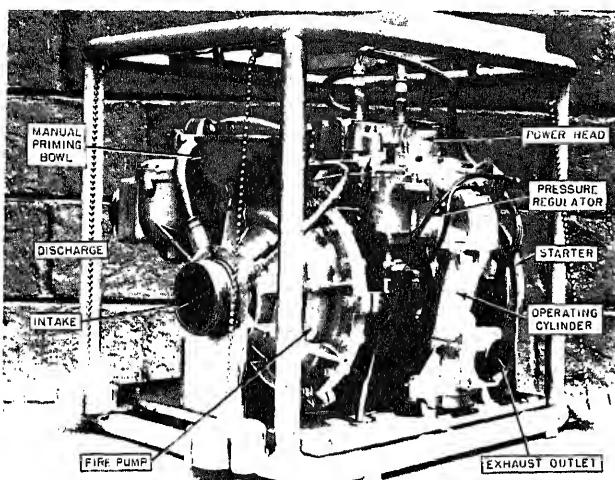


Figure 15-24.-P-250 pump.

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The FP-180 water motor proportioner (fig. 15-23) consists of a foam liquid pump driven by a water motor with the water supplied from the fire main. The FP-180 water motor proportioner has 2 1/2-inch connections at both the inlet and outlet sides and uses two 1/2-inch pickup tubes. When the foam valve is in either one of the two foam positions, the water flowing through the motor causes the foam pump to inject the proper amount of foam liquid into the water stream. With the valve in the OFF position, no foam is delivered and the fire hose is available for conventional fire fighting. The valve should always be in the OFF position except when actually producing foam.

The FP-180 is effective with discharge hoses up to 100 feet in length. After foam has been made with the FP-180, you should always flush the equipment with water for 2 or 3 minutes before stowing.

The P-250 fire-fighting pump is designed for use in fire-fighting or dewatering operations. For fire fighting it is used to draw water from the sea or from other sources and to pump it through hoses and nozzles at approximately 100 pounds per square inch. For dewatering, the P-250 is used to draw large volumes of water at low pressure from flooded compartments. The water can then be discharged into the sea or into some other disposal system.

The P-250 has a capacity of 250 gallons per minute and is self-priming up to a suction lift of between 16 and 20 feet. A P-250 pump is shown in figure 15-24.

Before operating the P-250 portable pump, you should make sure all suction hose connections are tight. Make sure the proper sizes of gaskets are used at all suction connections. The strainer should be completely submerged in water. If the pump fails to draw water or if the discharge nozzle shows an uneven stream, the probable cause is that poor connections are allowing air leakage into the suction side of the pump. The suction hose foot valve/strainer basket assembly should be kept clear of mud or debris that might be drawn into the pump. The pump must not be operated in a confined space unless the exhaust hose is connected so that the toxic engine exhaust gases can be carried to the atmosphere.

To operate the P-250 pump, follow the equipment starting and operating procedures attached to the pump.

CAUTION

DO NOT run the pump more than 45 seconds unless pressure shows on the gauge. If the pump is not primed in 45 seconds, stop the engine, tighten all suction connections and hose couplings, and try priming again.

If the pump is operated for more than 15 to 20 seconds with the outlet valve in the CLOSED position, the pump may begin to cavitate and speed up as a result of the accumulation of air in the pump. Open the water outlet valve momentarily to allow the trapped air to escape.

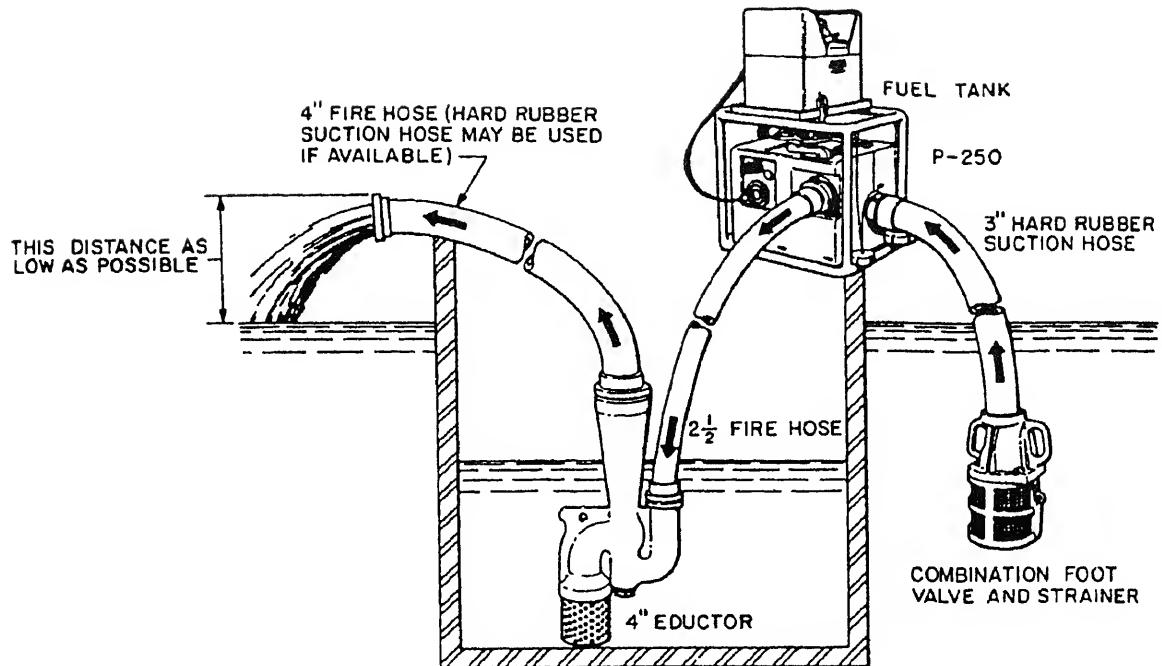


Figure 15-25.—P-250 pump and eductor rigged for dewatering.

After the P-250 pump has been operated and then shut down, it should be prepared for temporary stowage by the following procedure:

1. Remove the fuel tank from the pump and disconnect the fuel hose. Release the fuel tank pressure by loosening the filler cap. Retighten the cap.
2. Disconnect the suction, exhaust, discharge, and drain hoses.
3. Drain the pump and pump head by tilting the unit back and forth until all water has been drained. Repeat this operation several times, each time returning the unit to its normal position for about 10 seconds to allow more water to drain from the power head to the discharge outlet.
4. Flush the pump by pouring clean fresh water, if available, into the manual priming bowl.
5. Replace the thread protector caps on all openings, and clean and dry the entire unit.

Eductor

When a fire is being fought, large amounts of water are pumped into the ship. A 2 1/2-inch hose with a pressure of 100 psi, for example, pumps nearly a ton of water per minute. Obviously, this water must be

removed or the stability of the ship will become greatly affected.

The P-250 pump can be used for dewatering by a straight pumping action (placing the pump's suction hose in the flooded space and directing the discharge overboard) at a rate of about 300 gallons per minute. (The rate is higher than for fire fighting because of lower discharge pressure requirements.)

While the foregoing pumping rate may be good enough in some instances, it usually is better to pump at a greater rate. The dewatering rate of a single P-250 pump can be nearly doubled by adding another type of pump called an eductor.

Figure 15-25 shows how an eductor works. Water drawn in through the foot valve is discharged through the P-250 pump's 2 1/2-inch discharge hose, which is connected to the eductor. The force of the water passing through a jet in the eductor creates a partial vacuum that draws in additional water through the eductor's 4-inch intake. Thus the total amount of water discharged overboard is the normal capacity of the P-250 plus the water picked up by the eductor.

Eductors also are used when the liquid to be pumped (such as gasoline or other flammables) cannot be handled directly by the P-250 itself. In such instances, the P-250 suction hose is placed overboard or in any

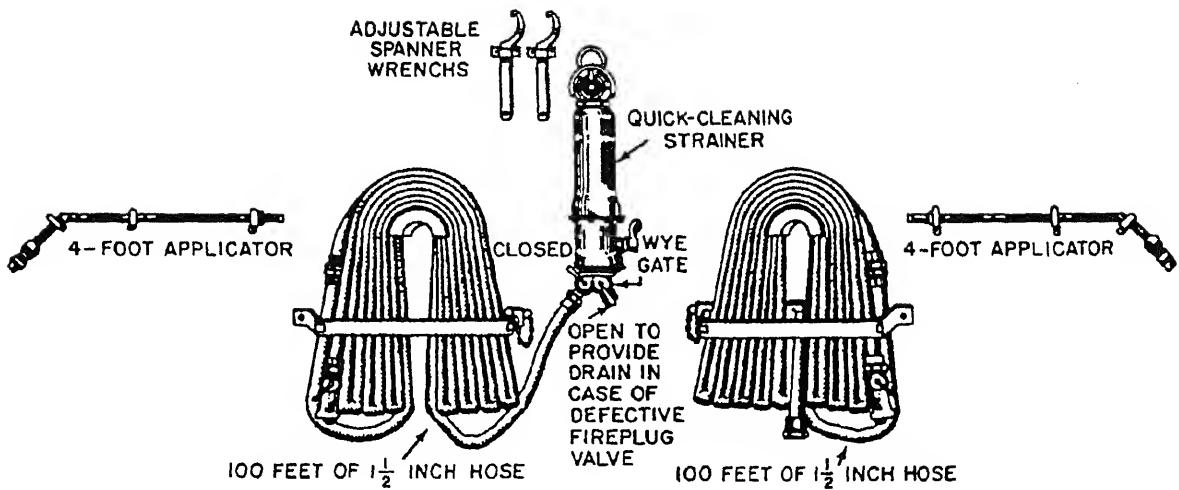


Figure 15-26.—Fire station equipment.

source of uncontaminated water. This practice eliminates the chance of damaging the P-250 or of igniting the flammable liquid if the liquid were to run through the pump.

Fire Hose

The standard Navy fire hose has an interior lining of rubber covered with double cotton or polypropylene jackets. It comes in 50-foot lengths with a female coupling at one end and a male coupling at the other end. The female coupling is connected to the fireplug; the male coupling is connected to another length of hose or to the all-purpose nozzle.

Ships of destroyer size and smaller use 1 1/2-inch hose. Larger ships use 2 1/2-inch hose on the weather decks and 1 1/2-inch hose belowdecks and in the superstructure.

One or more hose racks are provided at each fireplug for the stowage of fire hose. The hose must be faked on the rack so that it is free-running and with the ends hanging downward so that the couplings are ready for instant use. On large ships, each weather deck fire station has 100 feet of 2 1/2-inch hose faked on a rack and connected to the plug. Belowdecks, 200 feet of 1 1/2-inch hose is stowed by each plug, but only one line is connected to the plug. On smaller ships, 100 feet of 1 1/2-inch hose is faked on the racks, with 50 feet connected to the plug. Spanner wrenches for loosening connections and one or two applicators also are stowed at each fire station (fig. 15-26).

Spare lengths of hose are rolled and stowed in repair lockers. To roll a hose, lay it out straight; then fold it back so that the male end is on top and about 4 feet from the female end. Starting at the fold, roll the hose so that its threads are protected. When it is necessary to use the hose, set it on the deck (female end down) and simply give it a shove to unroll it.

NOTE: Always take the male end to the scene of action.

Before connecting two lengths of hose, make sure the coupling gaskets are in place. One person can make a connection. Step on one hose just behind the male fitting. That will cause the end to point upward. Grasp the female end of the other hose and couple it with the male end; take a half-turn to the left to seat the threads; then turn it in the other direction to tighten it. Do not use tools to tighten; hand tight is sufficient.

Fire Hose Fittings

Many different fire hose fittings are used to connect fire-fighting hose. Those used on board ship include a male and female coupling, a double female and a double male coupling, a straight reducing coupling, and the wye gate. The thread dimensions on all couplings are uniform. At all times, any connection using fire hose fittings must have rubber gaskets of the proper size.

Figure 15-27, view (A), shows the double female coupling, and view (B), the double male fitting. These fittings, 2 1/2 or 1 1/2 inches in diameter, are used to connect two male or two female hoses to make jumper line assemblies.

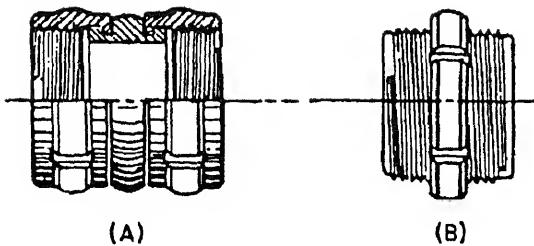


Figure 15-27.—(A) Double female coupling; (B) double male fitting.

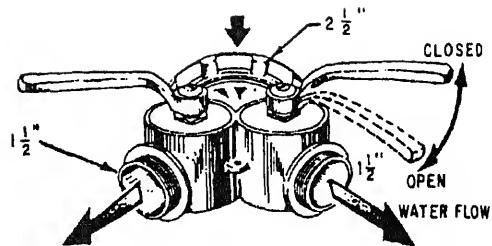


Figure 15-29.—Wye gate.

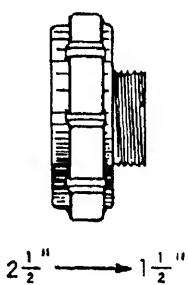


Figure 15-28.—Straight reducing coupling.

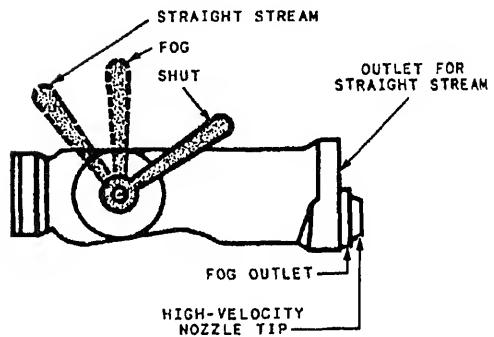


Figure 15-30.—Navy all-purpose nozzle.

The straight reducing coupling (fig. 15-28) serves to reduce a 2 1/2-inch size to a 1 1/2-inch size on either a fireplug or a fire hose. This coupling has female threads at the large opening and male threads at the reduced opening.

The wye gate shown in figure 15-29 is used to attach two 1 1/2-inch hoses to a fireplug or to reduce a 2 1/2-inch hose to two 1 1/2-inch hoses. The standard wye gate is equipped with two stop valves so that each hose can be controlled independently of the other.

NOTE: Never lead more than one hose from the same fireplug to the scene of a fire.

All-Purpose Nozzle

The all-purpose nozzle shown in figure 15-30 can produce a solid stream of water; high-velocity fog; or, when used with an applicator, a low-velocity fog. It is available for both the 1 1/2-inch and the 2 1/2-inch hoses. The nozzle can be adjusted easily and quickly by means of a handle, called a bail.

The solid stream comes out of the topmost of two openings. High-velocity fog is produced by a nozzle tip in the lower opening. Low-velocity fog is produced by replacing the nozzle tip with an applicator. The types of applicators and the nozzles with which the all-purpose nozzle can be used are shown in figure 15-31.

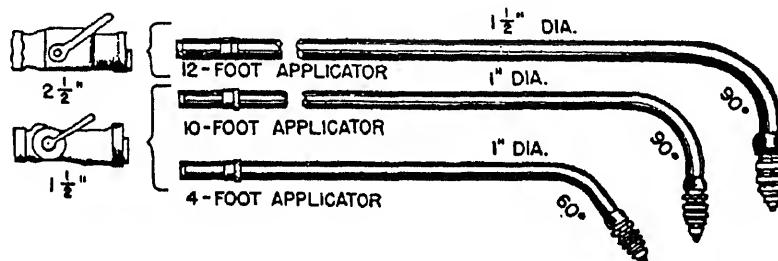


Figure 15-31.—Standard applicators.

Never pick up a charged hose by the handle of the all-purpose nozzle. (A hose is charged when it has water pressure at the nozzle.) The handle could easily move to the fog or open position, and the high water pressure (about 100 psi) could cause the hose to whiplash dangerously, possibly injuring personnel or damaging equipment.

Portable Extinguishers

Two types of portable fire extinguishers are used by the Navy: carbon dioxide (CO_2) and dry chemical (PKP). Each is effective in fighting both class B and class C fires.

Portable CO_2 extinguishers are used mainly for putting out electrical fires, but they are also effective on small fires, including burning oil, gasoline, paint, and trash cans. The CO_2 , being heavier than air, forms an oxygen-displacing blanket over the fire. Maximum range of the extinguisher is 5 feet from the horn.

To use the extinguisher, remove the locking pin from the valve, grasp the insulated handle of the horn with one hand, and squeeze the grip with the other. If you are in the open, approach the fire from the windward side. Direct the discharge at the base of the flames, sweeping the horn back and forth. Open and close the valve as needed. The D ring that slips over the handle is used ONLY for refilling.

NOTE: When you are discharging CO_2 , the cylinder must be grounded to prevent a buildup of static electricity.

When CO_2 is released from the container, it expands rapidly to 450 times its stored volume. This rapid expansion causes the temperature of the gas to drop to -110°F and forms carbon dioxide "snow." Do not permit the snow to come in contact with your skin, as it will cause painful blisters.

Dry-chemical extinguishers are provided primarily for use on class B fires. The chemical used is potassium bicarbonate (similar to baking soda), called purple-K powder, or simply PKP. It is nontoxic and is four times as effective as CO_2 for extinguishing fuel fires. PKP is also effective on class C fires, but it should not be used if CO_2 is available. Neither should PKP be used on internal fires in gas turbines or jet engines, as it leaves a corrosive residue that cannot be completely removed without disassembly of the engine.

The portable PKP dry-chemical extinguisher (fig. 15-32) is of the 18-pound and 27-pound size and uses CO_2 as the propellant of the extinguishing agent. The

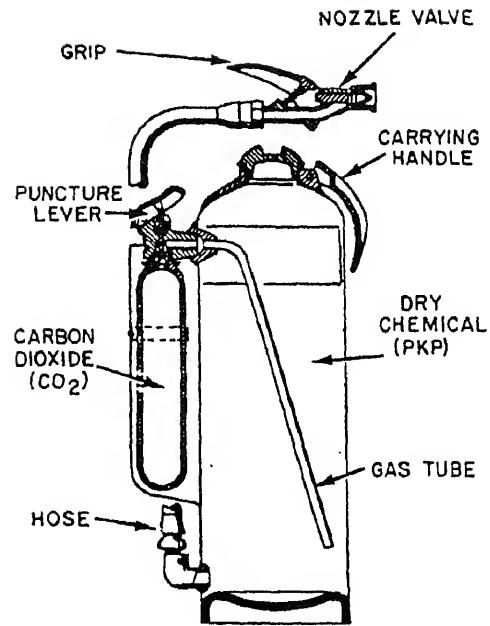


Figure 15-32.—Portable PKP dry-chemical extinguisher.

extinguisher shell is not pressurized until it is pressed into service. Operating procedures are as follows:

1. Pull the locking pin from the seal cutter assembly.
2. Ensure the cap of the PKP cylinder is tight.
3. Point the nozzle away from personnel in the area.
4. Sharply strike the puncture lever to cut the gas cartridge seal. The extinguisher is now charged and ready for use.
5. Discharge the chemical in short bursts by squeezing the grip on the nozzle. Aim the discharge at the base of the flames and sweep it slowly from side to side. If the heat from the fire is intense, a short burst of powder into the air will provide a heat shield. The effective range is about 20 feet.
6. When finished, invert the cylinder, squeeze the discharge lever, and tap the nozzle on the deck. This action releases all pressure and clears the hose and nozzle of powder. If not cleared, the PKP could cake and cause difficulty the next time the extinguisher is used.

The dry chemical PKP is an excellent fire-fighting agent, but its effects are temporary. It has no cooling

effect and provides no protection against reflash of the fire. Therefore, PKP should always be backed up by foam. In confined spaces, PKP should be used sparingly, just enough to extinguish the fire, as unnecessarily long discharges reduce visibility, render breathing difficult, and induce coughing.

Aqueous Film Forming Foam (AFFF)

AFFF fire extinguisher installations are provided in locations such as machinery spaces and hangar decks.

As mentioned previously, PKP cannot prevent reflash of a fire because it has no vapor-suppression capability. It is fully compatible, however, with AFFF. AFFF is a 6 percent concentration that, when mixed with water, produces a foam. As the water drains from the foam, a vaportight film is formed on top of the fuel.

Many larger ships have fog/foam injection stations (sometimes called HIGHCAPS) for combating large class B fires. The AFFF tanks can hold anywhere from 300 to 1,000 gallons of AFFF. Associated piping supports fog/foam sprinkler systems in areas such as flight decks, hangar bays, and cargo holds. Foam can be administered by electric foam injection pumps, and some ships are still using FP-1000 water/foam proportioners. Both types are designed to deliver a ratio of 94 percent water and 6 percent foam (AFFF). In addition to sprinkler systems receiving foam/water, AFFF hose reels in various locations equipped with 1 1/2- and 2 1/2-inch vari-nozzles are also supported.

Twinned Agent

A foam-and-powder system that uses a combination of AFFF and PKP is the twinned agent fire-fighting extinguisher. The AFFF and PKP are delivered to the fire by a set of "twinned" hoses.

As a minimum, each machinery space has two twinned-agent stations, each station consisting of 50 feet of twinned AFFF and PKP hoses mounted on reels and one 125-pound PKP cylinder. The AFFF tank and a fixed FP-180 proportioner for mixing AFFF with water from the fire main is located on the damage control deck. One person can operate the unit.

Aircraft carriers have a portable AFFF/PKP system mounted on a truck (fig. 15-33), known as a twinned-agent unit (TAU). The TAU has a sphere containing 200 pounds of PKP and a cylinder containing 80 gallons of AFFF concentrate. Nitrogen is used to pressurize the system. Discharge hoses are 1 inch for the AFFF and 3/4 inch for the PKP. They are joined together

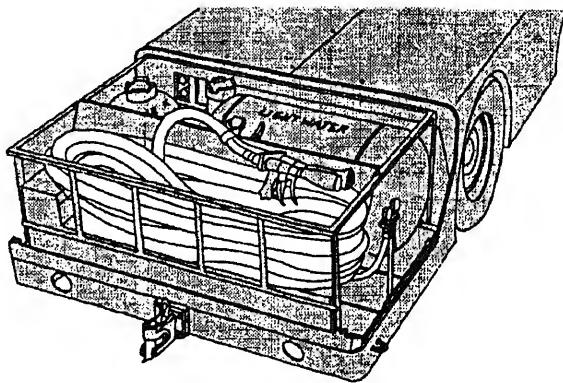


Figure 15-33.—Portable twinned-agent unit.

near their nozzles and may be operated independently or concurrently by one person.

PIPING SYSTEMS IDENTIFICATION

Piping systems aboard ship are normally painted to match the surrounding compartment. The pipes are labeled to identify the type of fluid flowing through them. They are also labeled with arrows to indicate the direction of flow.

In some piping systems, however, the valves; associated equipment; and, in some instances, the pipelines are painted a specific color for identification purposes. A knowledge of this means of identification is essential in fire fighting and damage control. Some of the colors used in this system are as follows:

1. Fireplugs (fire main system)—red
2. AFFF equipment (high-capacity systems, such as AFFF tanks, proportioners, and pumping equipment)—machinery gray; all piping and risers the same color as the surrounding structure
3. Monitors and nozzles—green with one 2-inch red band around each nozzle or discharge device
4. Hose valves or cutout valves in AFFF piping—red with green stripes
5. Halon valves or operating levers—gray/white stripes
6. JP-5 fuel piping—purple in interior spaces
7. Gasoline piping—yellow
8. Oxygen piping—light green
9. Steam piping—white

10. Nitrogen—light gray

11. Sewage—gold

Piping systems are marked in some conspicuous location (preferably near control valves) to make identification easier. They are also marked at suitable intervals so that every line carries at least one marking in each compartment through which it passes.

Identification markings include the name of the service and the direction of flow. These markings may be painted on by stenciling or hand lettering or by applying adhesive-backed tape on which the markings have been printed, stenciled, or lettered. These identifying marks should be in 1-inch letters for 2-inch or larger outside diameter pipe or insulation. For smaller sizes, the size of the letters may be reduced or label plates may be attached by wire or other suitable means.

In addition, a 3-inch arrow leads from the identification marking, with the arrowhead pointing in the direction of flow. When flow is reversible, arrows are shown on each end of the identification and destination markings.

Valves are marked by inscribing the rims of handwheels, by a circular label plate secured by the handwheel nut, or by label plates attached to the ship's structure or to the adjacent piping. Each valve label gives the name and purpose of the valve. For example, a valve may be labeled as follows:

DRAIN BULKHEAD STOP
2-85-1

The purpose of the valve is indicated in the first line. The location of the valve is indicated by the numbers in the second line. The first numeral indicates the deck (in this example, the second deck); the next numeral indicates the frame (in this example, frame 85); and the last numeral indicates the relationship to the centerline (in this example, starboard). Uneven numbers are always used for the starboard side and even numbers for the port side.

EMERGENCY ALARMS

All Navy ships have a system of alarms to identify emergency situations and to alert the crew. The following section explains what each alarm sounds like and the actions to be taken when the alarm is sounded.

- **GENERAL ALARM:** The sound of the general alarm is a series of single gong tones. Before

the alarm is sounded, word is passed for all hands to man their battle stations, and the type of emergency is identified. Example: "Fire in compartment 3-125-0-E. (Repeated.) All hands man your battle stations." The general alarm is then sounded and material condition Zebra is set. The general alarm is sounded (preceded by the appropriate word) for general quarters (action against the enemy), fire, chemical warfare (CW), biological warfare (BW), and nuclear weapon attack.

- **CHEMICAL ALARM:** The chemical alarm is a steady tone signal of 1000 hertz. It is sounded when a CW, BW, or nuclear weapon attack is detected, whether the ship is at general quarters or not. On sounding the chemical alarm, condition Zebra is set (if not already at general quarters) and circle-W fittings are closed.

- **COLLISION ALARM:** The collision alarm takes precedence over and overrides any other alarm being sounded. It has the same tone as the chemical alarm; but instead of a steady tone, the collision alarm consists of a series of three pulses, with a short pause between each series. Battle stations are manned and condition Zebra is set on the sounding of this alarm.

The alarm consists of passing the word twice: "Fire (collision, explosion, and so on) in (location)." Additionally, for fire, the ship's bell is rung rapidly for several seconds, followed by a single stroke if the location is forward, two strokes if amidships, and three strokes if aft.

When the ship is in port without all hands aboard, the duty damage control repair party, plus other crew members as assigned, is responsible for taking care of the emergency.

Always man emergency stations on the double. If possible, observe the following traffic pattern: up and forward on the starboard side; down and aft on the port side.

SUMMARY

A ship lives or dies, depending on its crew's ability to combat a wide range of casualties. As mentioned in this chapter, these casualties are not restricted to times of conflict. These casualties can occur while moored in your home port, at anchorage overseas, or during a routine peacetime deployment. The requirement for every person on board, from the commanding officer to the fireroom messenger, to have a good basic knowledge of damage control procedures and constant training and drills in combating shipboard casualties is essential to

the ship's survival. This training and preparation demonstrated during the recent Persian Gulf crisis saved several U.S. Navy ships that sustained considerable damage. If these crews had not been trained in damage control, these fine ships and most likely a large portion of their crews may have been lost.

Damage control is an everyday all-hands responsibility. The proper use of the closure log is just as important as knowing how to don an OBA or use a fire hose. The business of damage control is serious.

Learn it well; your life, the lives of your shipmates, and your ship depend on it.

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Damage Controlman 3 & 2, NAVEDTRA 10572, Naval Education and Training Program Management Support Activity, Pensacola, Fla., 1986.

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CHAPTER 16

CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL DEFENSE

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Define the difference between radiation and radiological contamination.
2. Describe the effects of nuclear radiation.
3. Identify the terms associated with radiological contamination.
4. Describe the methods of dissemination of chemical and biological agents.
5. Describe the properties of chemical warfare agents.
6. Describe the procedures for reading and interpreting dosimeters.
7. Describe the radiation detection equipment and their uses.
8. Describe the markers used to indicate CBR contamination.
9. Describe the proper care and use of the protective mask.
10. Explain the self-aid and first-aid methods for countering effects of nerve, blister, blood, choking, and chemical agents.
11. Recognize the appropriate equipment and clothing to protect against CBR contamination.
12. Explain the protection afforded by each level of mission oriented protective posture.
13. Define the purpose of monitoring and decontamination teams.
14. Define the procedures for decontamination afloat and ashore.
15. Explain the procedures for personnel decontamination.
16. Describe the purpose of the collective protection system.

Because many nations (not all friendly) have the capability of deploying nuclear warfare, biological warfare (BW), or chemical warfare (CW) agents in any future conflict, you must understand the nature of such an attack and be prepared to protect yourself, your ship or station, and your shipmates if such an attack occurs.

Today's nuclear weapons have a far greater destructive capacity than weapons of the past. These modern weapons have the capability of destroying entire cities, causing thousands of casualties from blast, shock, thermal and nuclear radiation.

Nuclear weapons and chemical or biological agents may be delivered in many ways. Like nuclear radiation, biological and chemical agents do their damage quietly.

Defense against these agents is both an individual and group responsibility. The actions you take before, during, and after an attack will affect your own as well as your ship's chance of survival. All hands are responsible for setting proper material conditions, detecting agents, isolating contaminated areas, and decontaminating and restoring the ship and equipment to a ready condition.

In this chapter we describe why nuclear, BW, and CW weapons are referred to as weapons of mass destruction. We will explain how these weapons are disseminated and describe their effects. We will identify the procedures used to detect and identify chemical, biological, and radiological (CBR) contamination, as well as the symptoms, effects, and treatment for

exposure to CBR contamination. We will discuss the meaning of contaminated area markers and describe the duties of the decontamination teams.

NUCLEAR, BIOLOGICAL, AND CHEMICAL WARFARE OPERATIONS

Nuclear weapons produce explosions of great force and heat and release nuclear radiation. Their primary purpose is the mass destruction of targets and personnel. BW operations entail the use of such agents as microorganisms, fungi, and toxins to induce diseases that will cause death or other casualties. In CW operations, agents that are used can kill or disable personnel by affecting their blood, nerves, eyes, skin, lungs, or stomach. Nuclear weapons cause mass destruction and casualties; biological and chemical attacks have as their goal mass personnel casualties. Thus these weapons are called mass destruction weapons because they destroy large areas or because they kill or disable large segments of the population.

ATTACK METHODS

A variety of weapons and methods may be used to deliver nuclear, biological, or chemical agents. The use of two or more different types of weapons to deliver these agents may be used at the same time. Aircraft may be used to deliver nuclear bombs, and CW or BW agents may be delivered by bomb or aerosols.

Chemical agents have been placed in projectiles and used effectively. A similar possibility exists with biological agents; however, for technical reasons it appears that the most probable method of delivery is by aerosol.

Missiles provide another means of delivering nuclear, chemical, and biological weapons. Missiles have long-range attack capabilities and may carry any type of warhead. Nuclear, biological, or chemical agents may be delivered in almost any manner by land, sea, and air units.

NUCLEAR WARFARE

In one respect, nuclear weapons are no different from ordinary high-explosive bombs. Both are designed to cause destruction by blast and shock effects. Nuclear weapons, of course, have a much greater destruction capability than do conventional high-explosive weapons, with the added effects of nuclear radiation.

Nuclear explosions are classed according to the relationship of the fireball to the earth: high altitude, air,

surface, and subsurface. Because there are no appreciable surface effects from a high-altitude burst (above 100,000 feet), that type is not discussed.

Airburst

Immediately after a nuclear explosion, a huge, intensely hot fireball is formed. An airburst is one in which the fireball does not touch the earth's surface. All materials within the fireball are vaporized. As the fireball rises, it cools to the point where the vapor condenses to form a highly radioactive cloud. At sufficiently low altitudes, the rising fireball creates strong circulating winds that suck up dust and other debris from the surface. This debris combines with the condensed vapor to form the familiar mushroom-shaped cloud.

Detonation of the nuclear bomb creates a blast wave that travels outward in all directions at an initial speed much greater than the speed of sound. When the wave strikes the earth's surface, another wave is formed by reflection. At some distance from ground zero (depending on the height of the burst), the primary and reflected waves combine to form a reinforced blast wave. Pressure at the wave front, called overpressure, is many times that of normal atmospheric pressure and is what causes most of the physical damage. The overpressure decreases as the distance from the blast increases, but it can cause damage many miles from the blast.

Nuclear radiation is of two types: initial and residual. Initial radiation occurs within the first minute after an explosion; residual radiation occurs thereafter. In most instances, initial radiation is of little consequence because the lethal range of its effects is less than that of the blast wave.

Residual radiation is contained in the base surge and/or fallout cloud. The greatest danger from residual radiation is fallout—the return to earth of radioactive particles of the cloud. In an airburst, most of the particles are carried high into the air where they are scattered by the winds and returned to earth slowly, usually decaying below their danger point by the time they reach the surface. Fallout from a low-altitude airburst presents a greater hazard because the heavy particles of debris picked up from the surface settle rapidly and are highly radioactive, but the hazard is not so great as that from surface and subsurface bursts.

Surface Burst

A surface burst is one in which the fireball touches the earth's surface. Vast amounts of surface materials are vaporized and taken into the fireball. As the fireball rises, more debris is sucked up by the strong after winds. Much of this debris returns to earth as radioactive fallout. The effective range of blast damage is less than that from an airburst because much of the energy is transmitted in the form of a ground or water shock wave. Near ground zero, however, the severity of the shock wave is greater than that of the blast wave. The distance at which thermal radiation is hazardous is slightly less than that from an airburst.

Danger from residual radiation of the surface burst is great since the surface material drawn into the cloud is heavy enough to fall while still highly radioactive. Additionally, the area endangered by fallout is much larger than the area affected by heat and shock.

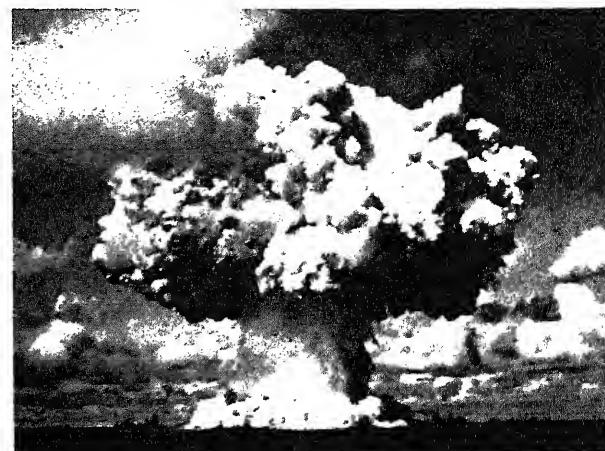
Subsurface (Underwater) Burst

In an underwater burst a fireball is formed, but it is smaller than in an airburst and normally is not visible. The explosion creates a large bubble (cavity) that, upon rising to the surface, expels steam, gases, and debris into the air with great force. Water rushing into the cavity is thrown upward in the form of a hollow column that may reach a height of several thousand feet. When the column collapses, a circular cloud of mist, called the BASE SURGE, is formed around the base of the column (fig. 16-1). The base surge billows upward to a height of several hundred feet and expands outward rapidly to a distance of several thousand yards, at which time it gradually rises from the surface and merges with the cloud formed by the escaping fireball.

Practically all thermal radiation is absorbed by the surrounding water, but a highly destructive shock wave is formed (called overpressure) and is many times greater than the blast wave from an airburst. Additionally, large water waves are created, some reaching heights of over 90 feet within a few hundred feet from the blast. The water waves travel outward at high speed for a distance of several miles, gradually diminishing in size.

EFFECTS OF NUCLEAR WEAPONS

Nuclear weapons produce explosions of great force and heat and release nuclear radiation. Their primary purpose is the mass destruction of property and



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Figure 16-1.—The radioactive cloud and first stages of the base

personnel. Their effects are divided into three categories: blast, burns, and radiation.

Blast

Injuries caused by blast can be divided into primary (direct) injuries and secondary (indirect) injuries. Primary blast injuries result from the direct action of the air shock wave on the human body. The greater the weapon's size, the greater the blast wave's effective range will be, with a subsequent increase in casualties.

Secondary blast injuries are caused mainly by collapsing buildings and by timber and other debris flung about by the blast. Personnel may also be hurled against stationary objects or thrown to the ground by high winds accompanying the explosion. Injuries sustained are similar to those resulting from a mechanical mishap, such as bruises, concussions, cuts, fractures, and internal injuries.

At sea the shock wave accompanying an underwater burst will produce various secondary injuries. Casualties resemble those caused by more conventional underwater weapons, such as mines and depth charges; but instead of being localized, they extend over the entire ship. Injuries also will result from personnel being thrown against fixed objects or structures. Equipment, furniture, boxes, and similar gear, when not secured properly, can act as missiles and cause many injuries.

Frequently, hemorrhage and shock are serious complications of blast injuries.

Burns

Burns caused by a nuclear explosion are of two categories: primary and secondary. Primary burns are a direct result of the thermal radiation from the bomb. Secondary burns are the result of fires caused by the explosion.

As with blast injuries, shock is commonly associated with extensive burns. Burns are also subject to infection, which may produce serious consequences.

Flash burns are likely to occur on a large scale as a result of an air or a surface burst of a nuclear weapon. Because thermal radiation travels in straight lines, it burns primarily on the side facing the explosion. But under hazy atmospheric conditions a large proportion of the thermal radiation may be scattered, resulting in burns received from all directions. Depending on the size of the weapons, second-degree burns may be received at distances of 25 miles or more.

The intense flash of light that accompanies a nuclear burst may produce flash blindness, even at a range of several miles. Flash blindness is normally of a temporary nature, though, as the eye can recover in about 15 minutes in the daytime and in about 45 minutes at night. A greater danger lies in receiving permanent damage to your eyes caused by burns from thermal radiation, which may occur 40 miles or more from a large-yield nuclear weapon.

Nuclear Radiation

Nuclear radiation hazards are the alpha and beta particles, gamma rays, and neutrons. Alpha particles have little skin penetrating power and must be taken into the body through ingestion or cuts to be injurious. Beta particles, on the other hand, can present a hazard to personnel if the emitters of these particles (carried in contaminated dust, dirt, or bomb residue) are in contact with the skin or get inside the body. Beta particles with enough intensity will cause skin burns (radiation burns). Gamma rays, which are pure energy and not easily stopped, can penetrate every region of the body. In fact, many gamma rays will pass right through a body without touching it. However, gamma rays that do strike atoms in the body cause ionization of these atoms, which may result in any number of possible chemical reactions that damage the cells of the body. Neutrons, which have the greatest penetrating power of the nuclear radiation hazards, create hazards to personnel when the neutron

is captured in atoms of various elements in the body, atmosphere, water, or soil. As a result of this neutron capture, the elements become radioactive and release high-energy gamma rays and beta particles. Initial radiation contains both gamma and neutron radiation. Residual radiation, our greatest concern, contains both gamma and beta radiation.

BIOLOGICAL WARFARE OPERATIONS

BW operations use living organisms to cause disease or death. They act on living matter only. Most organisms that produce disease enter the body of the victim and grow in the human tissues. Some organisms produce toxins (poisons) in food or water, and the poison causes disease after the victim eats or drinks the contaminated matter.

Large-scale BW attacks by an enemy are as yet an untried weapon. As far as it is known, there has been no open attempt by any country to use this form of attack. BW agents, however, have certain characteristics that favor them over other types of warfare, and the possibility of their use in the future must be anticipated. Only small amounts of the agents are needed because the organisms are alive and multiply in the victims. Moreover, they are difficult to detect and slow to identify. A whole ship's company might be infected before the medical department realizes a disease exists on board.

The most efficient means of delivering BW agents on a large scale is through aerosols, which generally are invisible and odorless. They can be released from aircraft through bombs or direct sprays; from surface vessels by onshore winds; or from any number of explosive munitions, such as projectiles, guided missiles, and rockets.

Animals, insects, and rodents can be used as carriers to spread BW agents.

Another method of quickly infecting large numbers of people is for saboteurs to contaminate a water supply. Diseases, such as typhoid fever, cholera, and influenza, can be spread by infecting water, milk, and food supplies with the proper microorganisms.

CHEMICAL WARFARE OPERATIONS

CW agents are used to produce death, injury, temporary incapacitation, or irritating effects. (Screening smokes are not toxic unless inhaled in large amounts like any other smoke. Incendiaries are used

primarily to start fires. These two agents are not discussed further.)

Broadly speaking, there are three types of antipersonnel agents: CASUALTY, INCAPACITATING, and RIOT CONTROL.

Casualty CW agents are highly poisonous and are intended to kill or seriously injure. Included in this group are nerve, blister, choking, and blood agents. Nerve agents, as a group, are probably the most effective because only small doses are needed to produce death. Some agents are so persistent (when dispersed as a liquid) that they can remain effective for several days. They enter the body by the victim's breathing or swallowing, or through the victim's skin. Blister agents cause severe burns, blisters, and general destruction of body tissue. If they are inhaled, the lungs are injured. Choking CW agents inflame the nose, throat, and particularly the lungs. Blood agents interfere with the distribution of oxygen by the blood.

Some casualty agents have a cumulative effect, which means that successive doses add to the effect of each preceding dose. You might receive a nonlethal dose of a nerve agent, for example, followed within a few hours by another nonlethal dose. The cumulative effects of the two exposures, however, could be sufficient to cause death.

Another development is the nonlethal incapacitating CW agent. It renders personnel incapable of performing their duties by interfering with the mental processes that control body functions. Reactions vary among individuals. One person might go into shock, and still another might have a feeling of extreme fatigue. These agents are difficult to detect because most of them are colorless, odorless, and tasteless.

Riot control CW agents include tear and vomiting gases that cause temporary disability. Tear gases are used mainly for controlling riots, but they have been used in warfare with varying degrees of success. Without a gas mask the individual is rapidly incapacitated, but the effects disappear in 5 to 10 minutes after the person dons a protective mask or gets to fresh air.

Vomiting gases are useful if the enemy intends to launch an attack with casualty agents. They cause extreme nausea and vomiting, requiring those who have been exposed to remove their masks, thus exposing those personnel to more of the casualty agents.

CONTAMINATION DETECTION AND IDENTIFICATION

In order that a ship or station may retain its offensive power and carry out its mission, immediate detection and identification of radiation and BW and CW agents are of the greatest importance. The very nature of radiation and BW and CW agents, however, makes it difficult to detect and identify them.

In a nuclear attack, for instance, you know an attack is taking place because you can see it, hear it, and feel it. But you can't see the nuclear radiation, which can be just as deadly over a period of time as the blast itself. In the same invisible way, BW agents can be present, with the possibility of no one knowing until it is too late. Developments in chemical operations make some of the chemical agents colorless and odorless. It is essential, therefore, that you be able to recognize them whenever you or your shipmates are victims.

You should learn the symptoms of each type of attack so that you can take the proper action when exposed and be able to render the correct self-aid and first-aid procedures.

Symptoms of Nuclear Radiation

The first symptoms of exposure to nuclear radiation are nausea and vomiting. Later (2 weeks or more) symptoms are diarrhea, loss of hair, loss of weight, sore throat, and skin hemorrhage. Death rates depend on the amount of the dose and the general physical condition of the victim. Unless a very heavy dose is received, ultimate recovery can be expected in most instances.

Symptoms of Biological Warfare Agent Contamination

In the early stages of any biological disease, the general symptoms are fever, malaise, and inflammation.

The degree of fever varies with the individual, depending on the person's resistance, but it does serve as a rough guide to the severity of infection. Often the fever is preceded by a violent chill. Whether the chill occurs or not, the fever is usually one of the earliest symptoms.

Malaise is a feeling of bodily discomfort and weakness. There may be nausea, dizziness, loss of appetite, and general aches and pains.

Inflammation is caused by the reaction of body tissues combating and sealing off an infection. In almost every case there is pain, redness, and swelling. Some

types of infection result in a characteristic rash, making it possible for the doctor to make an early diagnosis.

Symptoms of Chemical Warfare Agent Contamination

CW agents will make you a casualty when your body comes in contact with a bigger dose than it can withstand. The limits of tolerance of the human body vary from short periods of exposure and low concentrations of certain agents to extended periods of exposure and high concentrations of certain other agents. Furthermore, the limits of tolerance to specific agents vary with individuals. In any event, your principal concern is recognizing the symptoms and relieving the effects of exposure before the limit of exposure is exceeded.

Nerve Agents

Symptoms of nerve agent contamination are a runny nose, tightness of chest with difficulty in breathing, contraction of eye pupils, nausea, cramps, headache, coma, and convulsion. All of these symptoms can take place within minutes to hours if the dose is sufficiently heavy.

Vapors of the G- or V-series nerve agents, even in low concentrations, cause contraction of the eye pupils. This action affects the sight, especially in dim light, and induces a headache. After a brief exposure to the vapors, a feeling of tightness in the chest may be noticed, which increases with deep breathing. The liquid substance does not injure the skin, but penetrates it and poisons the body. Contraction of the pupils, in such an instance, may not appear as a warning sign.

A 1- to 5-minute exposure of personnel not wearing protective masks to low concentrations of G- or V-agent vapors causes difficulty in vision. Slightly greater exposures cause headache, nausea, pain in the chest, and more serious visual difficulties. Exposure of the unbroken skin to vapor alone, however, entails little danger of serious injury.

Liquid contamination from a nerve agent to the skin is a real hazard. One of the first signs of exposure when liquid contaminates the skin may be excessive sweating and twitching of the muscles at the site of contamination. Small amounts of liquid left undisturbed on the skin can cause death in a matter of a few minutes. Entrance to the body is even more rapid through the eye surfaces and through the linings of the mouth and nose. A lethal dose can be absorbed as rapidly by getting the liquids in the eyes as by inhaling concentrated vapor. When poisonous

vapors are swallowed, the first symptoms are excessive flow of saliva, intestinal cramps, nausea, vomiting, and diarrhea. If the nerve agent is absorbed into the system after the victim is exposed to liquid or vapor, the symptoms may be generalized sweating, difficulty in breathing, muscular weakness, and eventually convulsions, paralysis, and unconsciousness.

Blister Agents

Immediate contact with LIQUID MUSTARD or MUSTARD VAPOR causes no eye or skin pain or any other immediate symptoms. Exposure to mustard gas for more than half an hour, however, produces the following symptoms: Half an hour to 12 hours after exposure, the contaminated eyes water, feel gritty, and become progressively sore and bloodshot; the eyelids become red and swollen; and infection frequently results.

Mustard vapor will burn any area of the skin, but the burn will be most severe in moist areas (neck, genitals, groin, armpits, bends of knees, and elbows). Redness of the skin follows in 1/2 to 36 hours after exposure. This condition may be accompanied by intense itching, and blisters may then appear. Stiffness, throbbing pain, and swelling may also be observed.

A few hours after breathing the mustard vapor, a victim experiences irritation of the throat, hoarseness, and coughing. After severe exposure, the lining of the respiratory system swells and interferes with breathing. Frequently, pneumonia develops.

If the whole body is exposed to mustard vapor, the body goes into a state of shock. This reaction is accompanied by nausea and vomiting.

Nitrogen mustards irritate the eyes before they affect the skin or respiratory system. The action of nitrogen mustards on the eyes occurs in a shorter time than that of mustard. Even low concentrations of these agents may seriously decrease the vision during or shortly after exposure. Later effects are similar to those of mustard. Contact of these agents with the skin produces damage like that produced by mustard, and their effects on the respiratory system are also similar.

Blood Agents

Symptoms produced by blood agents, such as HYDROGEN CYANIDE, depend upon the concentration of the agent and the duration of the exposure. Typically, either death occurs rapidly or recovery takes place within a few minutes after removal

of a victim from the contaminated area. If a victim inhales a high concentration of a blood agent, the victim begins to breathe more deeply within a few seconds, has violent convulsions after 20 to 30 seconds, stops breathing regularly after 1 minute, then gives occasional shallow gasps, and finally the heart stops only a few minutes after the onset of exposure. After moderate exposure, giddiness, nausea, and headache appear very early, followed by convulsions and coma. Long exposure to low concentrations may result in damage to the central nervous system. Mild exposure may produce headache, giddiness, and nausea, but usually recovery is complete.

The effects of cyanogen chloride combine the properties of two agents: chlorine and cyanogen. The chlorine properties induce coughing, dryness of the nose and throat, tightness across the chest, smarting and watering of the eyes, resulting finally in the accumulation of fluid in the lungs. Cyanogen is similar to hydrogen cyanide and, like the agent, causes giddiness, headaches, unconsciousness, convulsions, and death.

Choking Agents

In low concentrations, choking agents produce an action on the respiratory system that results in the accumulation of fluid in the lungs. This effect may lead to death. High concentrations produce death for the same reason, but the upper respiratory tract may be involved as well. Exposure to choking agents may produce immediate dryness of the throat, coughing, choking, tightness across the chest, headache, nausea, and at times, smarting and watering of the eyes. Symptoms usually are delayed, however, and it is possible that no immediate symptoms will appear when exposed to a fatal dose.

Even a mild exposure to a choking agent that is accompanied by immediate symptoms may cause fluid to accumulate in the lungs within 2 to 24 hours after exposure. The presence of this fluid is indicated by shallow and rapid breathing, a hacking and painful cough, frothy saliva, and an ashen gray color of the skin.

Vomiting Agents

Exposure to vomiting agents is followed soon by a pepperlike burning of the eyes, nose, throat, and air passages. The burning sensation is accompanied by a flow of tears and by repeated coughing and sneezing. These symptoms increase in severity for several minutes, even after the victim dons a mask. The victim

becomes sick to the point of vomiting. When the mask is removed, the victim is then exposed to even more hazardous agents.

Tear Agents

Tear agents are local irritants that in low concentration act primarily on the eyes, causing intense pain and a considerable flow of tears; stinging of moist, warm skin; and irritation of the nose. High concentrations affect the upper respiratory tract and lungs and cause nausea and vomiting. The most effective agent is CS (chlorobenzylmalononitrile) gas. It causes incapacitation 20 to 60 seconds after exposure. Recovery usually occurs within 10 minutes after removal to fresh air. These agents may be either solids or liquids and dispersed as vapors or smoke.

Table 16-1 summarizes the recognition, effects, and treatment of various chemical agents.

METHODS OF DETECTION

Human senses cannot be depended upon to detect nuclear radiation and BW or CW agents. Neither nuclear radiation nor BW agents can be seen, smelled, or felt. Some CW agents are recognizable by their color or odor, but recently developed types, particularly nerve agents, do not have these characteristics. Fortunately, mechanical, chemical, and electronic means are available or under development for detection and identification of these agents.

Nuclear Radiation

Whenever a ship has been exposed to radiation or has been radiologically contaminated, such as from a base surge or fallout, surveys must be made to determine the degree of contamination.

Two types of measurement are made: intensity (dose rate) of the radiation field and the total amount (dose) received. This information is necessary to calculate safe entry time (time after exposure when an area may be entered safely) and stay time (length of time a person may remain in an area without exceeding permissible radiation exposure levels). Dose rate is expressed in roentgens, and the total dose in rads. Roentgens are a measure only of gamma rays, whereas rads measure any type of radiation. Instruments used are radiac meters and personnel dosimeters. (Radiac stands for radioactivity detection, indication, and computation.) Radiac meters generally are used only by

Table 16-1.—Chemical Agents Reference List

AGENTS	CHEMICAL AGENT SYMBOL	STATE AT 20°C	ODOR	RATE OF ACTION	PHYSIOLOGICAL ACTION	PROTECTION REQUIRED	DECONTAMINATION	MEANS OF DETECTION	USE	PERSISTENCY
CHOKING AGENTS	Phosgene CG	Colorless gas	New-mown hay; green corn	Immediate to 3 hours, depending upon concentration	Damages lungs	Protective mask	None needed; aeration in closed spaces	M18A2	Delayed action casualty agent	Short, however, vapor may persist for some time in low places under calm or light winds and stable atmospheric conditions (inversion).
	Diphosgene DP	Colorless liquid	New-mown hay; green corn	Immediate to 3 hours, depending upon concentration	Damages lungs	Protective mask	None needed; aeration in closed spaces	M18A2	Delayed action casualty agent	
	Chlorine CL	Yellow gas	Chlorine	Immediate	Damages lungs	Protective mask	M258A1. Soap and water	M18A2	Quick-action casualty agent	
NERVE AGENTS	Tabun GA	Colorless to brown liquid	Faintly fruity; none when pure	Very rapid	Cessation of breath and death may follow	Protective mask and clothing	M258A1. Bleach slurry, steam in confined area	M18A2 and M256 kits, CWDD	Quick-action casualty agent	Depends upon munitions used and weather. Heavily splashed liquid persists 1 to 2 days under average weather conditions.
	Sarin GB	Colorless liquid	Almost none when pure	Very rapid	Cessation of breath and death may follow	Protective mask and clothing	M258A1. In confined area steam; hot soapy water	M18A2 and M256 kits, CWDD	Quick-action casualty agent	
	Soman GD	Colorless liquid	Fruity; camphor odor when pure	Very rapid	Cessation of breath and death may follow	Protective mask and clothing	M258A1. Hot soapy water	M18A2 and M256 kits, CWDD	Quick-action casualty agent	
	VX	Colorless liquid	Odorless	Rapid	Produces casualties when inhaled or absorbed	Protective mask and clothing	M258A1. Hot soapy water	M18A2 and M256 kits CWDD	Quick-action casualty agent	
BLOOD AGENTS	Cyanogen chloride CK	Colorless gas	Somewhat like AC;	Rapid	Interferes with use of oxygen by body tissues	Protective mask	None needed	M18A2 and M256 kits	Quick-action casualty agent	Short, vapor may persist in jungle or forest for some time under suitable weather conditions.
	Hydrogen cyanide AC	Colorless gas or liquid	Bitter almonds	Very rapid	Interferes with use of oxygen by body tissues	Protective mask	None needed	M18A2 and M256 kits	Quick-action casualty agent	Short; the agent is highly volatile and in the gaseous state it dissipates quickly in the air.
BLISTER AGENTS	Distilled mustard HD	Colorless to pale yellow liquid	Garlic	Delayed; hours to days	Blisters; destroys tissues; injures blood vessels	Protective mask and clothing	Bleach	M18A2 and M256 kits	Delayed-action casualty agent	Depends upon munition used and the weather. Heavily splashed liquid persists 1 to 2 days in concentrations to provide casualties of military significance under average weather conditions, and a week to months under very cold conditions.
	Nitrogen mustard HN-1	Dark liquid	Fishy or musty	Skin effects delayed 12 hours or longer	Blisters; affects respiratory tract; destroys tissues; injures blood vessels	Protective mask and clothing	Bleach	M18A2 and M256 kits	Delayed-action casualty agent	
	Nitrogen mustard HN-2	Dark liquid	Soapy in low concentrations, fruity in high concentrations	Serious effects same for HD; minor effects sooner	Similar to HD. Bronchopneumonia may occur after 24 hours	Protective mask and clothing	Bleach	M18A2 and M256 kits	Delayed-action casualty agent	
	Nitrogen mustard HN-3	Dark liquid	None if pure	Immediate effects on contact	Similar to HN-2	Protective mask and clothing	Bleach	M18A2 and M256 kits	Delayed-action casualty agent	Considerably longer than for HD.
	Phosgene oxime dichloroforoxime CX	Colorless solid or liquid	Sharp; penetrating	Rapid	Violently irritates mucous membrane of eyes and nose; forms welts rapidly	Protective mask and clothing	None entirely effective	M18A2 and M256 kits		Somewhat shorter than for HD. Very short duration under humid conditions.
	Lewisite L	Dark oily liquid	Variable; may resemble geraniums	Prompt eye stinging; delayed blistering	Similar to HD plus may cause systemic poisoning	Protective mask and clothing	Bleach	M18A2 and M256 kits	Moderately delayed casualty agent	
	Mustard-Lewisite mixture HL	Dark oily liquid	Garlic like	Immediate eye effect; skin effects 1/2 to 1 hour	Similar to HD plus may cause systemic poisoning	Protective mask and clothing	Bleach	M18A1 kits, M256	Delayed-action casualty agent	Depends on munitions used and the weather. Somewhat shorter than that of HD.

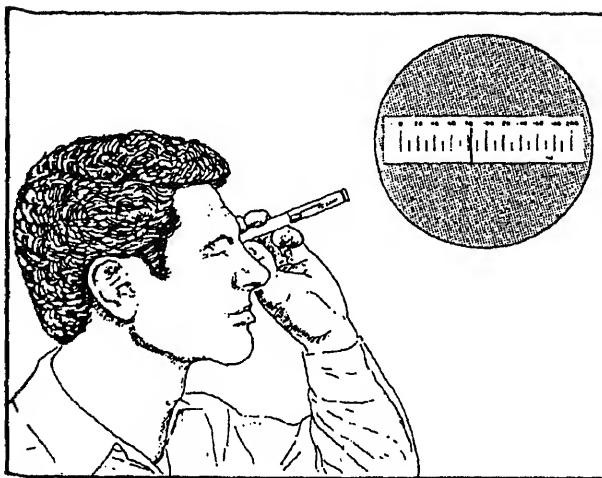


Figure 16-2.-Self-reading pocket dosimeter.

qualified damage control personnel, so our discussion is confined to personnel dosimeters.

There are two basic types of personnel dosimeters: self-reading and nonself-reading. The self-reading pocket dosimeter (fig. 16-2) is an instrument about the size and shape of a fountain pen and comes in several ranges: 0 to 5, 0 to 200, and 0 to 600 roentgens; and 0

to 200 milliroentgens. These instruments measure exposure to radiation over a period of time, not dose rates at any given time. By holding the dosimeter up to a light source and looking through the eyepiece, the total radiation dose received can be read directly on the scale. After each use, the dosimeter must be recharged and the indicator line set to zero.

In the nonself-reading category is the high-range casualty dosimeter, DT-60/PD (fig. 16-3), which must be placed in a special radiac computer-indicator to determine the total amount of gamma radiation to which the wearer has been exposed. Its range is 0 to 600 roentgens.

Biological Agents

No simple or rapid methods are available for detecting BW contaminants. A difficult and exacting procedure is the only satisfactory one known, and it consists of two phases: a sampling stage (by a CBR survey team) and a laboratory stage (by medical personnel).

Samples of material are taken from over a wide area. These materials include air, surfaces of bulkheads and decks, clothing, equipment, water, food, or anything else suspected of being contaminated. The samples are then

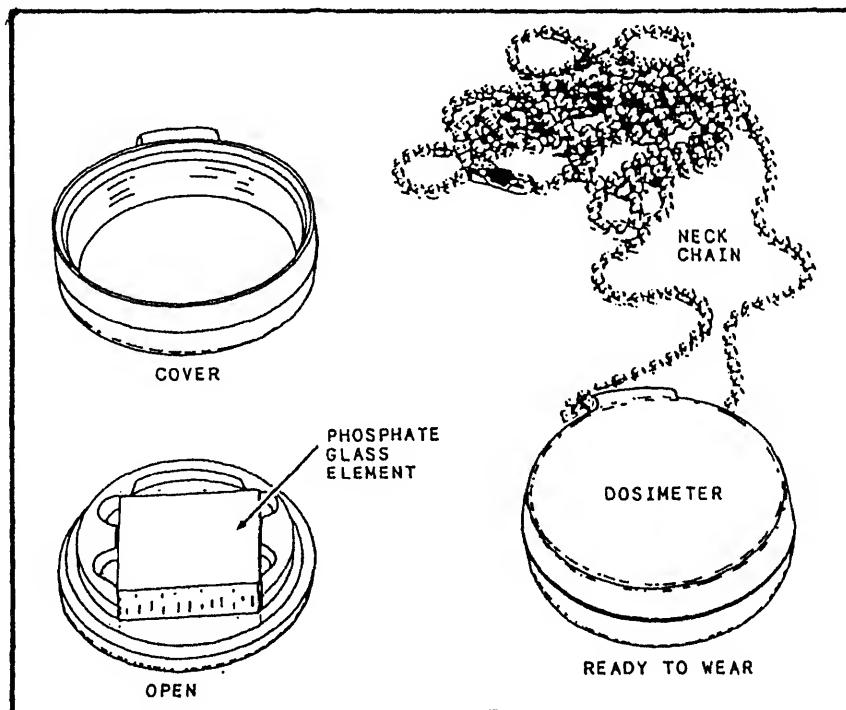


Figure 16-3.-High-range casualty dosimeter DT-60/PD.

shipped to a medical laboratory for identification of the agent, if present.

Chemical Agents

Warning of a CW attack, based on detection by the physical sense alone, might be not only dangerous but probably would come too late, particularly if fast-acting nerve agents were used. Detection of CW agents is accomplished by special devices.

Vesicant detector paper is used to detect the presence of liquid CW agents. One type changes color from green to red when liquid agents of any type are present. Another type provides information as to the type of agent. If the paper turns red, mustard is present; yellow indicates G agents, and greenish black indicates V agents.

Because of the limited capability of vesicant paper, monitoring personnel also use CW agent detector kits. These kits are used for checking areas suspected of being contaminated, for testing after decontamination operations, and for indicating when masks may be removed. The kits are not designed to indicate when it is necessary to don gas masks.

Survey Teams

After a CW, BW, or nuclear attack, survey teams go through the ship to determine the extent and location of any contamination. Rapid detection and identification are vital in order that effective defense measures may be taken immediately.

A survey team, or monitoring party, consists of a minimum of three people: MONITOR, RECORDER, and MESSENGER.

The monitor, who is in charge of the party, is equipped with high-range and low-range survey meters. The monitor is responsible for the safety of the team and for determining intensities and locations of contamination.

The recorder maintains a record of intensity readings obtained by the monitor, time of the readings, location of hazardous areas, and specific hazards. The recorder also may act as a marker, using line to rope off hazardous areas and chalk to mark on bulkheads and decks the intensities of contamination found during the survey.

The messenger reports to damage control (DC) central the contaminated areas and the readings obtained by the monitor. In DC central, personnel plot the reports from the various teams to obtain a general outline of contaminated areas in order to pinpoint hot spots (areas of higher-than-average intensities) and to establish stay times for specific areas (fig. 16-4).

Two types of surveys are usually conducted: a rapid, or gross, survey and a detailed survey. The rapid survey is a preliminary reconnaissance that obtains a limited number of readings in a minimum amount of time. Its purpose is to obtain a quick estimate of radiation levels at specified locations to determine the possibility of keeping stations manned or remanning stations that have been temporarily vacated. A detailed survey is usually conducted to determine the effectiveness of decontamination measures. All accessible areas and equipment are surveyed in a slow, methodical manner, with special attention being paid to areas that tend to hold contamination (rust spots, caulking in wood decks, canvas, rope, and so on).

Each member of a monitoring team must wear a protective mask and clothing and be equipped with both a pocket dosimeter and a high-range casualty dosimeter. No member with an open cut or wound should enter any contaminated area. Smoking, drinking, and eating are prohibited in contaminated areas.

CBR CONTAMINATION MARKERS

A standard system is used for marking areas contaminated by CW, BW, or nuclear agents. The markers are triangular in shape, with a base of

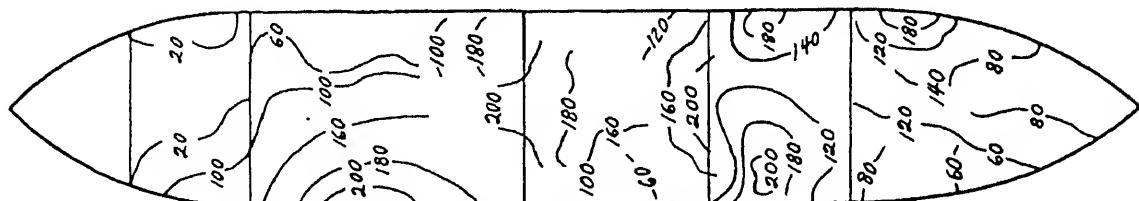
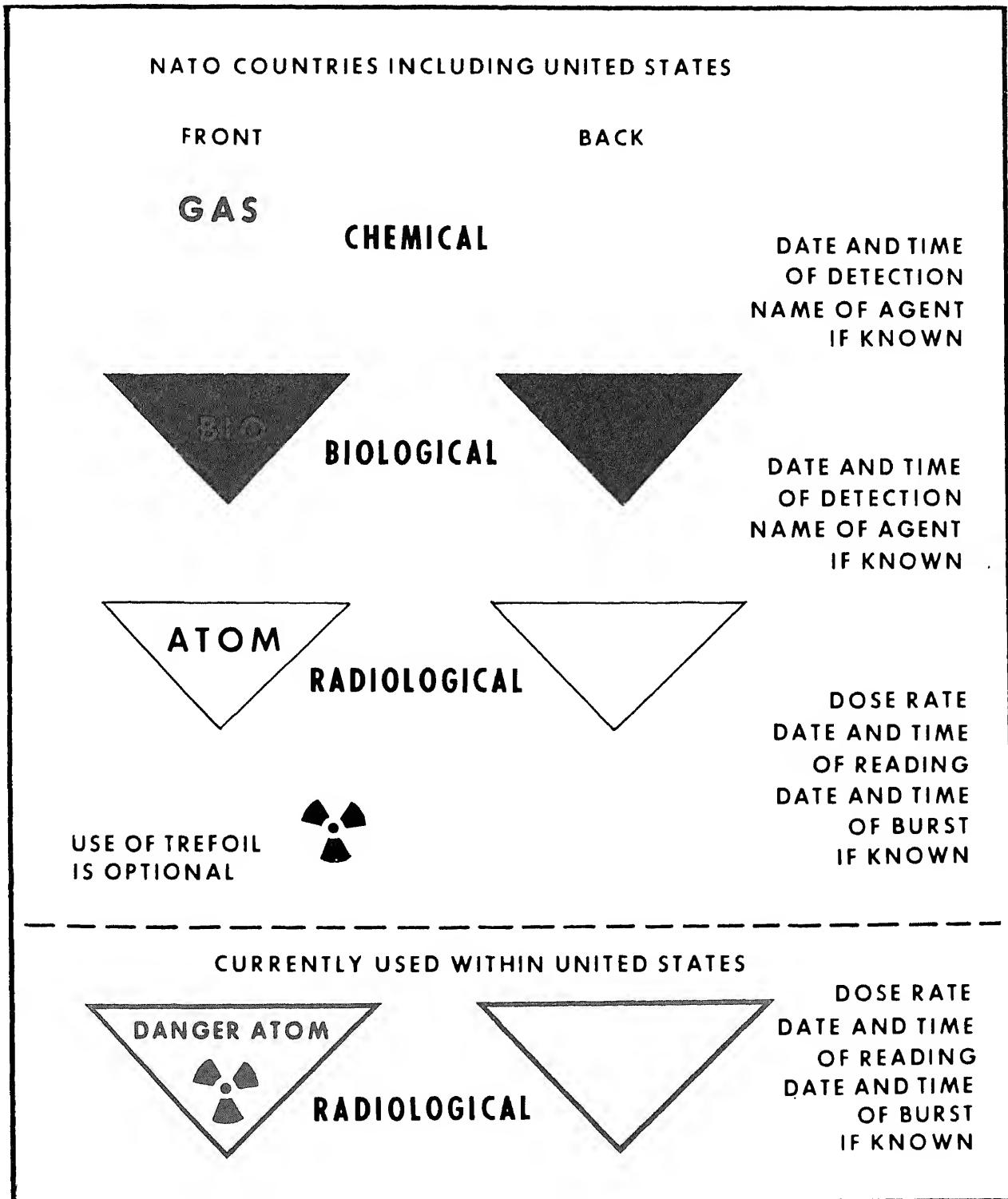


Figure 16-4.—General outline of contaminated areas on weather decks.

approximately 11 1/2 inches and sides of about 8 inches. Each type of contamination is readily identified by the color of the marker, as shown in figure 16-5. Additionally, they are labeled "GAS," "BIO," or "ATOM," as appropriate. The front of the marker

indicates the safe limits of the contaminated area; never go beyond the markers without permission. The front of each marker also contains information about the contaminated area, such as the date and time of detection and the type of agent.



CBR DEFENSE PROTECTIVE MEASURES

For a ship or shore activity to be able to continue its mission after a CW, BW, or nuclear attack, protection of personnel is essential. Protective measures include both individual and group actions. Individual protection is of more immediate concern. What you do in the first few moments of a CW, BW, or nuclear attack may determine whether or not you survive.

WHAT TO DO IN A CBR ATTACK

Defensive measures against a nuclear attack are much the same as the general damage control precautions taken against any explosion. These measures are to keep things squared away, maintain watertight integrity, make repairs as quickly as possible, protect yourself with your clothing and protective mask, be ready to fight fires ignited by the blast, and be ready to administer first aid against injuries and burns. What has been said about damage control and fire fighting in chapter 15 is also applicable to the damage and fires caused by nuclear weapons.

If there is warning of a nuclear attack, the commanding officer will pass the word to take cover when danger becomes imminent. The CO will see to it that no one on board is needlessly exposed to the attack. When the word is passed, go to your designated shelter as quickly as possible. At the sound of the alarm, get your protective mask ready. If you are ordered to a shelter, remain there until the all-clear signal is given.

If the explosion is an airburst, all personnel topside should immediately drop to the deck (behind a shield, if one is at hand), cover as much exposed skin as possible, close their eyes, and cover their faces with their hands. These actions will reduce the severity of burns from the thermal radiation. After the heat sensation passes, grasp a solid structure to prevent the following air blast from blowing you overboard or against the ship's structure.

If you are indoors ashore, duck under a table, desk, or bench. If outdoors, get into a ditch or vehicle, with your face away from the burst. Stay down for at least 10 seconds (longer if heavy objects are falling). This interval will allow time for the blast wave to pass and lessen the danger from flying objects.

An underwater burst requires different protective action. Grasp a solid structure, flex your knees, and stand on the balls of your feet. Hang on tightly, because the shock wave can easily throw you off balance, or you could be propelled into the overhead. Never lie on the

deck because this position presents more of your body to the shock forces transmitted through the deck.

The first indication you will have of a subsurface burst will be the sensation of an earthquakelike concussion, together with the appearance of the column of water or earth. Fortunately, the heat and nuclear radiations given off at the time of the explosion will be absorbed by the water or earth, but there will still be a radiation hazard from the base surge and the fallout. The base surge covers everything over which it passes. Consequently, shelter can be obtained only in a closed space that cannot be penetrated by the radioactive fog. The fallout, on the other hand, descends almost vertically, and protection from it is much easier to obtain. If you are unable to find shelter from both base surge and fallout, you should at least seek protection from the fallout. Should you be caught in the base surge and a protective mask is not available, hold a folded handkerchief (wet if possible) over your nose and mouth while the base surge is passing. Obtain medical attention as soon as possible.

If you are in a BW or CW attack, avoid the spray, mist, or cloud if you can. Wear your mask, cover your body as much as possible, and seek shelter. Ashore, close all windows and doors; at sea, shut off ventilation systems. Assume that all surfaces in the vicinity of the attack are contaminated; leave the area quickly, unless you are to assist in decontamination. Report any sickness promptly, and don't take chances with food or water that is not canned or bottled. Since BW and CW agents can sometimes enter your body through the skin, be sure that any cuts or scratches are covered. As with nuclear warfare protective measures, if you have no mask with you, cover your nose and mouth with your handkerchief.

As soon as the initial effects of the explosion are over, you should then follow the following precautions:

1. Put on your mask immediately or hold a handkerchief over your nose and mouth.
2. Adjust your clothing to cover exposed skin.
3. Slip on a protective cover, if you have one, or cover yourself with anything at hand.
4. Keep upwind of the explosion, if possible.
5. Administer first aid to yourself and to others.
6. If you are not a casualty, report to your duty station or to the designated area where you can take a shower and get clean clothes.

7. Keep your hands away from your face, particularly the mouth.
8. Don't eat, chew, drink, or smoke until the items are checked by a medical officer.
9. Do not stir up dust or step into puddles.
10. Do not brush against shrubbery and trees or touch buildings, structures, and objects in the contaminated area.

If you must remain in the contaminated area, eat only food approved by a medical officer. If you cannot follow this precaution, any foods or field rations with the outer wrappers intact can be considered safe if you decontaminate the outside wrapper before using them. Wash them with soap and water. Unpackaged foods or those whose packaging has been torn or opened are unsafe. Use only approved water.

Breathing radioactive particles is even worse for you than eating and drinking them. Take shelter from dust clouds raised by the wind, by aircraft, or by moving vehicles. Otherwise, use a protective mask or a handkerchief for protection.

Shelter Aboard Ship

Large ships, especially those having protective armor, provide some shelter from blast, heat, and immediate nuclear radiation effects. Such shelter would, of course, be available to you only if your shipboard duties permit you to be stationed behind shielding. (This restriction does not mean that you will be required to stay in the open during an attack. It means that personnel topside are more exposed to a surprise attack than the personnel below decks. If the explosion is not too close, there still may be time for personnel topside to take shelter from the base surge and fallout.)

In general, the farther you are below the main deck, the better you will be protected from nuclear radiation. To reduce the contamination from the base surge and from fallout, secure the appropriate Circle W fittings. All topside openings will be closed for as long as the ship is in the danger area.

Shelter Ashore

With sufficient warning of a nuclear attack, personnel can, of course, seek protection in designated civil defense shelters. These shelters provide a reasonable degree of protection and are stocked with necessary food supplies and medicines sufficient to last for several days.

The warning period, however, may give you only enough time to take cover immediately behind or in whatever shelter is at hand. Some protection can be gained in a foxhole, dugout, ditch, or culvert, or on the lowest floor or in the basement of a concrete or steel-framed building. Avoid wooden buildings. Usually, the safest place is in the basement, near the walls. The next best place is on the lowest floor in an interior room, passage, or hall, away from windows and, if possible, near a supporting column. In such a location you are protected from the blast, from immediate nuclear radiation, and from the radiated heat. The chief hazard is the possibility of being trapped by fire or debris.

If you cannot get to a basement, draw the shades and blinds to keep out the heat from the blast and to help shield you from broken window glass. Then take shelter under a bed or table.

Tunnels, storm drains, and subways provide good shelter. Normally, the thickness of the earth in those places will be sufficient to protect you from nuclear radiation. Additionally, the structure of the tunnel, storm drain, or subway usually will be strong enough to withstand the blast and the fire, although it may be somewhat vulnerable to the underground shock.

If a BW or CW attack occurs, seek cover anywhere you can. Close every window and door. If you can't get indoors, try to cover yourself, particularly your nose and mouth.

PROTECTIVE EQUIPMENT

The protective equipment described here includes masks, clothing, and antidotes for certain chemical agents. You should know how to use a mask and how to apply antidotes.

Masks

The protective mask, or gas mask, is your most important piece of protective equipment against CBR agents. It protects your face, eyes, nose, throat, and lungs. The reason it is so important is because inhaling CBR agents is much more dangerous than getting them on the outside of your body. Without filtration of some kind, a large amount of contamination could be inhaled in a short time.

The mask serves two functions: It filters the air, removing particles of dust that may be radioactive or otherwise contaminated; and it purifies the air of many poisonous gases. The mask does not produce oxygen, so

it does not provide protection against smoke or against such toxic gases as carbon monoxide, carbon dioxide, and ammonia; however, it may be used for emergency escape only as a last resort. When entering a compartment containing such gases, you must use an oxygen breathing apparatus or an air hose mask.

We will discuss two types of protective masks: the ND Mk V and the MCU-2/P.

The operation of all types of masks is basically the same. On inhalation, the air passes through a filter system that filters and absorbs the CBR agents. Exhaled air is expelled through a one-way valve.

Because the ND Mk V facepiece is issued in only one size, careful attention must be paid to adjusting the harness straps. Tension on the harness straps should be equal. The tension must be enough to prevent leakage, but the mask should not be uncomfortably tight. The straps are best adjusted by short jerks rather than steady pulls. Once you have it fitted, the mask should be loosened only enough to remove it. Minimum readjustment will then be needed when the mask is put on again.

From the moment you hear the alarm or suspect a CBR attack, hold your breath until you can put on the mask. You should be able to don and adjust your mask

within 10 seconds. If your eyes or face becomes contaminated before you can get the mask on, the contamination should be taken care of first, provided the necessary materials are readily available. The most important action is to don the mask immediately, then proceed with decontamination.

The following procedures are for the Mk V mask (fig. 16-6), but they also apply to all protective masks.

To don the mask, put on the mask, holding the cap of the head harness against the back of the head. Adjust the center (top) harness strap first; the lower part of the mask should touch the under portion of your chin. Last, adjust the temple straps and cheek straps. The ND Mk V mask is designed for a light touch of the mask on the face. The straps should not be taken up to a point where lines are visible on the face when the mask is removed.

As soon as the mask is on, clear it of possibly poisonous fumes by closing the outlet valve, exhaling rapidly to force air out the sides of the facepiece (fig. 16-7); then test for airtightness. Both of these steps are taken each time you put on the mask.

To test the mask for airtightness, tilt the head forward and exhale forcibly while shaking your head. Any leak will be noticed as air blowing out between the mask and your face. Next, place your hands over the canisters so no air can enter, and inhale normally until the mask collapses; hold your breath for about 10

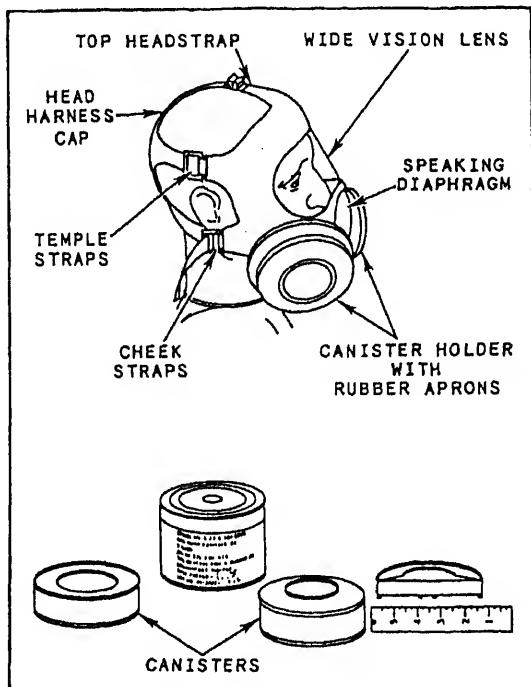


Figure 16-6.—Mk V protective mask.



Figure 16-7.—Clearing the mask of fumes.

seconds to see if the mask remains collapsed. If the mask does not collapse as it should or does not remain collapsed, the mask does not fit properly; either the straps must be adjusted, or the mask is defective.

To remove the mask, loosen the cheek straps by placing your forefingers under the tongues of the buckles, pulling forward. Then grip the chin section or canisters of the mask and pull forward and upward. The top strap and temple straps of the harness are not loosened when removing the mask. They should not be changed after correct initial adjustment.

Because the protective mask can be so important to you, give it the best possible care. It must be kept dry. Any moisture and perspiration should be removed after each use. The mask should be handled carefully; rough treatment can cause mechanical damage, tears, and scratched or broken lenses. It should be stored in a cool, dry place.

The MCU-2/P (fig. 16-8) protective mask consists of a unimold, silicone rubber facepiece. The mask has two voicemitters. One of the voicemitters is used for face-to-face speaking, and the side-mounted voicemitter is for use with communication equipment. The mask is equipped with a drinking tube. This will enable the wearer to drink from a canteen. The mask may be worn over approved mask-compatible

spectacles. The flexible lens permit the use of binoculars, a gunsight, or other optical equipment.

The large size of the lens gives the wearer a good all-around view. The filter canister can be used on either side of the mask. Updated features also include reduced breathing resistance, improved voice communications, improved face seal, and improved wearer comfort. The mask comes in three sizes. Donning procedures are similar to that of the ND Mk V mask. To check for airtightness, use the same procedure used for the ND Mk V mask.

Personal Decontamination

The purpose of the M258A1 decontaminating kit is to decontaminate skin and selected personnel equipment contaminated with chemical agents. The kit and the packets contained inside are olive drab in color. The M258A1 decon kit will do three complete skin decontaminations. You should check the kit case for any cracks, breaks, and missing snap fasteners. If the case is cracked, broken, or wet inside, or if parts are missing, you should replace the kit. Inside the kit case, the DECON 1 WIPE and the DECON 2 WIPE packets should be checked for tears and replaced if torn or if the ampoules in the DECON 2 WIPE packets have been broken.

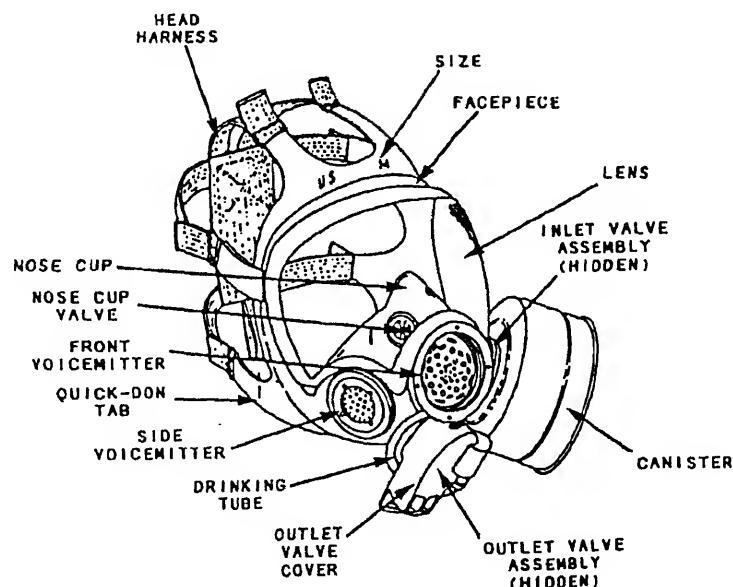


Figure 16-8.—MCU-2/P protective mask.

WARNING

The decontaminating solution is poisonous and a caustic hazard. Keep decontaminating solution out of eyes, wounds, or mouth. Use water to wash toxic agents of the decontaminating solution out of eyes or wounds, and seek medical attention. Once you know you have been contaminated, put on your protective mask and gloves and seek shelter from further contamination.

Decontaminating the face:

1. Snap open your decon kit and pull out DECON 1 WIPE packet by its tab.
2. Fold the packet on the solid line marked "BEND," then unfold.
3. Tear open quickly at the notch, remove the wipe, and fully unfold.
4. Hold your breath, close your eyes, and lift your protective mask from the chin.
5. Continue to hold your breath and wipe your face quickly.
6. Quickly wipe the inside part of the mask that touches your face.
7. Drop the wipe.
8. Reseal, clear, and check your mask.
- 9: Pull out one DECON 2 WIPE packet. Crush the enclosed glass ampoules between thumb and fingers or smash in the palm of your hand.
10. Fold the packet on the solid line marked "CRUSH AND BEND," then unfold.
11. Tear open quickly and remove wipe.
12. Fully open the wipe. Let the encased, crushed glass ampoules fall.
13. Hold your breath, close your eyes, and lift the mask from the chin.
14. Continue to hold your breath and wipe your face quickly.
15. Quickly wipe the inside part of the mask that touches your face.
16. Drop the wipe.

17. Reseal, clear, and check the mask for proper fit.

For other areas of skin other than the face, the procedures for decontamination are the same except for the following:

1. When using the DECON 1 WIPE, dab the contaminated skin for 1 minute.
2. When using the DECON 2 WIPE, dab the contaminated skin for 2 to 3 minutes.

NOTE: New and/or improved CBR defense and decontamination kits, clothing, and equipment are being introduced rapidly. Check with your supervisor to see if any new or improved articles are available.

Atropine and oxime are used to counteract the effects of and relieve the symptoms of nerve agents only. At the appropriate level of readiness, each crew member will be issued three atropine autoinjectors and two oxime autoinjectors. To use the injectors, remove the safety caps and press the injectors against the thigh or buttocks. The pressure on the end of the injector causes the automatic injection of the contents. As soon as the symptoms of nerve agent poisoning are noticed, immediately inject one atropine autoinjector and one oxime autoinjector. Wait 10 to 15 minutes; if symptoms are still present, inject another atropine and oxime autoinjector.

CAUTION

Use atropine and oxime only against nerve agents.

Protective Clothing

The chemical protective overgarment (CPO) (fig. 16-9) consist of two pieces: smock and trousers. The smock has two layers of materials—inner (anti-gas) and outer (modacrylic/nylon). It is generously cut with a back gusset that allows complete freedom of movement. Adjustment is quick and easy by velcro fasteners at the wrist and waist. The trousers are made of the same two layers of material. They have suspenders attached to the back with loops in front. They have velcro fasteners at the base of each leg. There are also gloves and overboots that complete the CPO. The CPO protects against all known CB agents and is permeable to water vapor. The CPO should provide at least 6 hours of protection when exposed to CB contamination.

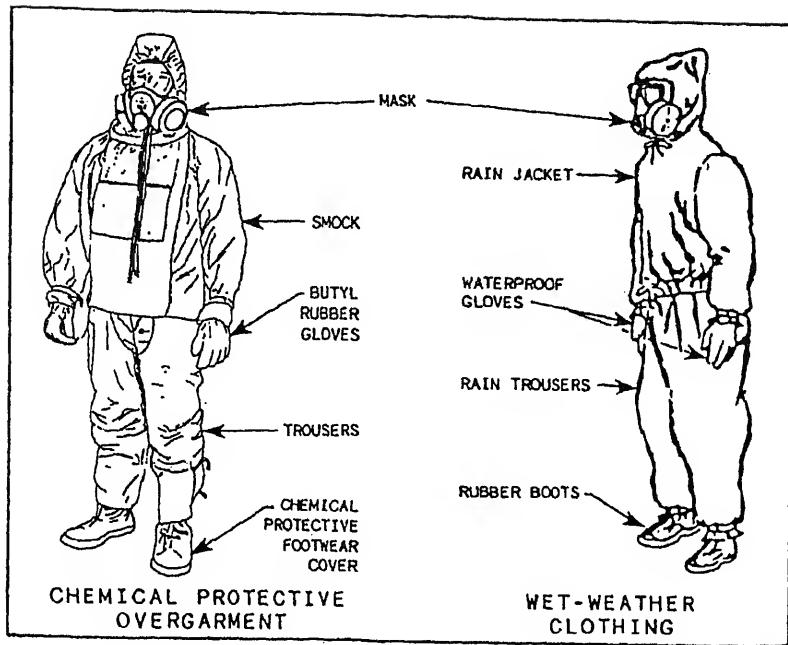


Figure 16-9.—Types of protective clothing.

CAUTION

The chemical protective overgarment (CPO) is NOT to be used for radiological contamination.

Wet-Weather Clothing

This ensemble (fig. 16-9) is made of chloroprene-coated nylon and is composed of a parka and overalls. The parka is a jacket style with cemented (rubber compound) side, neck, shoulder, hood, and sleeve joining seams. The parka has a permanently attached hood. The overalls are the bib-front, high-back style with cemented seams and inseams. Each hemmed leg bottom has a velcro tab attached. Wet-weather clothing is used for personnel protection against rain or heavy seas, but it may also be used as extra protection in a CBR environment. It provides complete protection against alpha/beta radiological contamination when worn with battle dress and antiflash gear and provides an extra layer of protection for the CPO. Because the wet-weather clothing tends to increase the heat stress

factor, this clothing should not be worn except as stated above.

MISSION ORIENTED PROTECTIVE POSTURE (MOPP)

Mission oriented protective posture (MOPP) provides a means to establish levels of readiness. MOPP furnishes a flexible system of protection against chemical agents and is used in CW defense to help in accomplishing the mission.

The MOPP does not require that personnel wear protective clothing all the time. Duty requirements, body heat buildup, and basic human needs will prevent you from using full-protective equipment for an infinite period of time. The MOPP does, however, give the commanding officer the option of no protection to full protection. This depends upon the threat to the ship.

All operations are conducted under the MOPP system. This applies even when there is no threat. Listed below are the four levels of MOPP, from Level-1, the least protection, to Level-4, the most protection.

MOPP Level-1

1. Protective equipment is issued to shipboard personnel.
2. Mask is fitted for immediate use.

3. Protective suit, boots, gloves, and mask (new canisters in can) are located at battle stations.

MOPP Level-2

1. Protective suit is donned (without hood up).
2. Mask (with unopened canister), boots, and gloves are carried or located at battle stations.

MOPP Level-3

1. Suit and boots are worn (without hood up).
2. Mask is fitted with filter canisters.
3. Mask and gloves are carried.

MOPP Level-4

1. All protective equipment is worn (hood up and secured).
2. Exposed topside personnel don rain gear over the protective suit.

The setting of MOPP levels may be different at various locations around the ship. This would depend on the mission, work rate, and heat buildup in these battle station areas (engine rooms, combat information center, flight deck, and so on).

DECONTAMINATION

There are four levels of decontamination:

- Emergency personnel decontamination. Emergency personnel decontamination is that which is necessary to save life and is an individual responsibility. The primary purpose of emergency personnel decontamination is to safeguard the individual in a protective ensemble including mask, protective overgarment, boots, and gloves. However, if a chemical attack takes place before a part or all of the protective ensemble is donned, it is vital to destroy, neutralize, or remove chemical agents from inside the protective ensemble and from the exposed skin area. The personal decontamination kits provide the individual with the ability to decontaminate skin surfaces. The cleansing/decontamination stations used for entering and leaving the ship's interior provide soap, detergent, and shower facilities.

- Limited operational decontamination. Limited operational decontamination is that which is necessary to allow individuals in protective clothing and/or masks to perform their task with a minimum risk of contact, pickup, and transfer of chemical agent contamination. Initial contamination is most likely to be on the upper-outer surfaces of structures and equipment.

Subsequently, further contamination may be picked up and/or transferred to noncontaminated areas. Two types of contamination hazards are as follows:

1. Pickup hazard. A chemical agent picked up on a surface touched by an individual, thereby contaminating himself or herself.
2. Transfer hazard. A chemical agent picked up, transferred, and then deposited on an otherwise uncontaminated area.

The objective of limited operational decontamination is to destroy, neutralize, or remove persistent chemical agents that are located on structures and/or equipment in places where they constitute a contact hazard.

- Operationally complete decontamination. Operationally complete decontamination (also known as full decontamination) is that which is in such detail and completeness that contamination of personnel, structures, and equipment is reduced to a level that results in a significant operational benefit. It entails reducing contamination to the lowest level possible but should only be conducted when there is a reasonable chance that such reduction will permit work to be performed without masks or gloves for limited periods and completion of the ship's missions without undue hazards to personnel. One hundred percent decontamination cannot be accomplished under inspection of each and every item suspected of being contaminated. This is not a fixed level of decontamination but depends on the ship's operating schedule and the urgency of the assigned mission. Decontamination at sea or by ship's personnel will be of this type.

- Chemically complete decontamination. Chemically complete decontamination is a degree of decontamination such that the appropriate chemical test fails to give a positive response for residual agent. Decontamination at naval shipyards, advanced bases, or by shore-based personnel will normally be of the 100-percent chemically complete type. This level is not mission essential for shipboard units.

DECONTAMINATION OF THE SHIP

The purpose of decontamination is to remove or reduce CBR contamination so that the ship can carry out its mission without danger to the life or health of its crew. Each type of contamination requires different decontamination procedures. Radiological (nuclear) contamination may be removed by washing it over the

side; CW agents may be neutralized; BW agents must be destroyed.

Nuclear Radiation Decontamination

Although complete decontamination of a ship usually requires the service of a shipyard, radiation levels can be reduced by shipboard personnel to the point where radiation no longer presents a serious hazard to the crew. Most of the radioactive particles can be removed by washing down the ship. Two washdown methods are used: mechanical and manual.

The mechanical method, called the ship's water washdown system, consists of a system of piping and nozzles that spray water over all weather surfaces. Water is supplied by the fire main. The washdown system actually is a preventive measure against fallout rather than a decontamination method, because normally the system is activated before the ship enters the fallout area.

The water spray carries away the radioactive particles as they fall on the ship. At the same time, the flowing water fills in the cracks and crevices so that the particles that do get through the spray cannot settle into them.

If parts of the ship are contaminated before the washdown system is turned on, water from the

sprinklers may not effectively reduce the radioactivity, because the slowly flowing water doesn't have enough force to wash away the particles. The areas of heavy contamination must be hosed down with water under pressure.

To hose and scrub down the ship (the manual method), decontamination teams are formed. A team usually consists of six people: the monitor, who is in charge; two hosemen; and three other team members. The hosemen wash down the hot spots with fire hoses, moving from the areas of less contamination toward areas of greater contamination, and working from top to bottom. The areas are then scrubbed by the remaining team members with soap or detergent and water and are rinsed by hosing (fig. 16-10). The hosing-scrubbing-hosing continues until monitoring shows that contamination is removed or at least reduced to a safe level. The contaminated water should be kept from vent systems, doors, and hatches, because washing away the particles does not destroy them; they are simply being moved over the side.

BW and CW Decontamination

BW decontamination means eliminating the sources of infection. Using a chemical disinfectant is the most effective way to decontaminate BW agents. The type of disinfectant depends on the agent, the material



Figure 16-10.—A decontamination team at work.

to be decontaminated, and sometimes the area. Other methods include burning, dry heat, and moist heat. Burning usually is unsatisfactory because it naturally destroys surface material. An example of dry heat is a hot air oven set at 180°. Moist heat includes hot water or steam under pressure. Sunlight also is effective in reducing BW contamination. The ultraviolet rays of the sun kill most BW agents.

In CW decontamination, weather alone is the simplest means. Bright sunlight is a decontaminant, even in cold weather. However, lack of time, unfavorable weather, or contamination of critical areas may require a faster method. Enclosed spaces can be steamed. All spaces can be treated with liquid detergents. Water alone is often satisfactory as a flushing agent; hot water or steam is better than cold water.

DECONTAMINATION ASHORE

Shore establishments must be decontaminated for the very same reason as ships—to carry out their missions while at the same time not endangering the life or health of its people.

While you may be able to wash the contamination over the side of a ship, you cannot use this method at a shore station. Some methods used for decontaminating a shore station are as follows:

- Weathering. Weathering is the simplest and easiest form of decontamination.

Warm, windy weather can significantly reduce CW and BW contamination. In some cases this may occur in a few hours or it may take a few days. Because of the many variables affecting the persistency of CW and BW hazards, it is impossible to predict accurately how long it takes CW or BW contamination to weather. Sunlight is especially effective against most BW agents.

Weathering has little effect on radiological hazards. Heavy rain and wind may remove some contamination, but only time will reduce the radiation emanating from the contamination.

- Flushing. Flushing with large quantities of water removes contamination. A pressurized stream of hot soapy water can remove significant amounts of agent. Scrubbing removes even more.

Flushing is not very effective against some kinds of CW and BW agents, especially thickened agents. Flushing may speed up the weathering process, however.

Flushing is very effective for removing loose radioactive contamination, such as fallout. Rainout (rain and fallout mixture), however, can coat surfaces with a film that resists flushing. The road film on a dirty vehicle cannot be rinsed off without first being scrubbed. Contaminated films left by rainout must also be scrubbed. Any contamination removed by flushing and scrubbing will remain radioactive, so runoff must be controlled.

- Burning. Burning works well against CW or BW contaminated vegetation but is of no value against radiological contamination. Gasoline or explosives may be used to burn or blow away CW or BW contaminated vegetation. Burning also works well on dirt surfaces. Soak the dirt area with kerosene or diesel fuel and ignite remotely. Gasoline will burn too fast for this purpose.

Avoid burning radiologically contaminated surfaces. Burning will not destroy radiological contamination or its hazards. It may spread contamination if radioactive particles become suspended in smoke spread by wind.

- Covering. Covering contamination does not destroy it, but it does temporarily keep the contamination hazards away from you.

Use roofing paper, plastic sheets, wood mats, or earth to cover CW and BW contamination. This is a temporary measure because the CW and BW agents may penetrate the covering. The covering may also extend the life of the contamination hazards by reducing their exposure to air and sunlight. When the contamination penetrates the covering or when the covering is removed, the hazards will reappear.

Radiological contamination must be covered by thick layers of dense material, like earth. Eight centimeters (3 inches) of earth will reduce radiation dose rates by half. Thirty centimeters (12 inches) is much more effective. Earth-moving equipment makes the job easier, but the equipment and operators will probably have to be decontaminated.

- Clear. You can clear passages by removing contaminated layers of soil covering the terrain.

Most CW agents will not penetrate the soil more than 5 centimeters (2 inches). BW agents penetrate even less. When contamination is scraped aside, a passageway will be created that is free of contamination. Contamination on either side of the passageway will continue to be a vapor hazard.

Radioactive fallout does not penetrate the top layer of soil unless it is followed by rain. It can be scraped aside. Move contaminated soil as far away as possible because the piles will tend to concentrate radiation.

PERSONNEL DECONTAMINATION

Each ship and shore station has a special area designated as a decontamination (decon) station, through which personnel exposed to CBR agents are processed. Aboard ship, the decon stations are shower rooms, one forward and one aft. Large ships have more stations. Each decon station is divided into three parts: a contaminated or an unclean area, a washing area, and a clean area. Whenever practicable, the clean and unclean sections have separate access routes and entrances. Ashore, existing shower facilities may be used, or special cleansing areas may be set up. Both types have the same features as a shipboard station; that is, unclean, washing, and clean areas. Undressing is done in the unclean area, and containers are located there for the disposal of contaminated clothing. A box containing a mixture of sand and bleach may be located at the entrance to the undressing area; if so, scuff your feet in the box before entering the station.

The following are some general decontamination procedures you should remember:

1. Enter the undressing area after scuffing your feet in the box, and sit on a bench with both feet on the unclean side. Remove your shoes, swing your legs to the clean side of the bench, and remove your outer clothing only. In case of a BW or CW attack, keep your protective mask on. (Remove your protective mask only when told to do so.) Be cautious in removing your clothing to prevent the possible rise of a secondary aerosol. After placing your outer clothing in the containers, proceed to another section, remove your underwear and socks, and place them in the appropriate containers.

2. Proceed to the washing area. If you have any cuts or abrasions, apply a 5-percent tincture of iodine solution to the affected area; then begin your shower. You should spend at least 5 minutes soaping, scrubbing, and rinsing. Give special attention to the hair, nails, skin creases, and ears, using a brush on the nails. You should rinse, soap and scrub, and then rinse again.

3. Proceed to the dressing area and dry off. (If nuclear contamination is involved, you will be monitored and required to repeat the shower until you are free of contamination.) Dress in clean clothing and proceed as directed.

Remember that showering does not destroy nuclear agents, nor many of the BW agents—it merely washes them away. It is essential, therefore, that you immediately report any illness (however minor) to medical personnel.

THE COLLECTIVE PROTECTION SYSTEM

The collective protection system (CPS) protects specific areas of the ship from the effects of CBR contamination by filtering the air supply and maintaining an overpressure to prevent the penetration of contaminants. The system is divided into two protection zones, the total protection (TP) zone and the limited protection (LP) zone. Total protection zones provide a pressurized, toxic-free environment, whereas the LP zones are not pressurized and do not provide protection against chemical agents in gaseous form.

The extent of CPS coverage varies. Some ships only have one or two TP zones and no LP zones, while others may have different numbers of protection zones. The level of protection is determined by the ship's mission, operational requirements, and the overall cost of installation. The following are the three levels of protection:

Level I, the shelter envelope—Provides protection for messing, berthing, sanitary, and battle dressing functions for 40 percent of the crew

Level II, the minimum operational protection envelope—Provides at least the same protection as level I, but also includes protection for key operational functions

Level III, the maximum operational protection envelope—Provides sufficient protection of the ship for mission requirements, but does not include launching aircraft or troops

SUMMARY

In this chapter we have discussed CBR defense. During a major conflict, an adversary intent on using weapons of mass destruction will devise a method of getting these weapons through our

defenses. The U.S. Navy has spent many years and a considerable amount of money developing protective systems, equipment, and measuring devices that are available to us today. These systems give us the ability to defend ourselves and our units against CBR attacks and the ability to continue as a combat-capable force. These systems, devices, and equipment will work if used properly and at the right time.

The continued training refinement of procedures, techniques, systems, and equipment will ensure the maximum protection available.

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CHAPTER 17

SURFACE PRESERVATION

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Explain the purpose of cleaning and preservation.
2. Explain the purpose of zone inspections.
3. Describe the equipment required and procedures necessary for preparing and painting a surface.
4. Describe the procedures for preserving unpainted surfaces.
5. Explain the safety precautions required when using electrical powered tools.
6. Describe the procedures for cleaning and stowing painting equipment.

Just about everyone has been involved with cleaning, preservation, and maintenance in one form or another. Helping paint the family home or washing and waxing your automobile is a good example. What you were trying to do was protect a surface from the effects of weather or exposure, extend its lifetime, and improve its appearance.

The U.S. Navy has a far greater problem. Virtually all Navy ships operate in a much harsher environment. The constant exposure to the actions of the sea and saltwater corrosion could quickly turn the exterior of a ship into a mass of rust. Interior spaces have their problems as well. The constant changes in the weather and in the surrounding water temperature cause moisture, humidity, and chemical reactions that affect electrical systems and machinery. To overcome these harsh conditions, the Navy expends a great deal of time, effort, and money applying surface preservatives. These preservatives range from detergent and water (fresh) to paint and lubricants. How well these preservatives work depends largely upon you.

In this chapter we will describe the general procedures for compartment cleaning, preparing surfaces for painting, and properly using paints and applicators. We will also discuss the safety precautions involved with painting and items to which paint should not be applied.

CLEANING

Maintaining clean conditions aboard ship and ashore has always been an important part of any naval activity. Cleaning is a job that involves practically every member, from the compartment cleaner to the inspecting officer. The close surroundings of Navy life require each of us to have a personal interest in our living and working areas, not only for the sake of appearance but for our health and safety as well.

THE CLEANING BILL

Each area of the ship is divided into various departments for upkeep. The cleaning, preservation, and maintenance bill describes these areas and outlines which department is responsible for them. This bill is carefully planned to ensure all interior and exterior areas of the ship's hull are assigned to personnel for upkeep and that no areas overlap or are left out. Each division within the department assigns its personnel to the spaces it is responsible for to carry out the duties of cleaning, preservation, and maintenance.

COMPARTMENT CLEANING

The term *compartment cleaner* generally applies to persons assigned to clean living or berthing compartments or spaces such as passageways and heads.

If you are assigned compartment cleaner duties, you will be responsible for keeping your spaces

exceptionally clean, preserved, and in good order. Newly assigned personnel are closely supervised to make sure they understand what to clean and how to clean it. Items that may be unfamiliar to you, such as electrical and mechanical devices, are located in almost every space aboard ship. With this in mind, caution must be observed at all times. Ask your supervisor to point out any hazardous items located in your compartment, and observe all special cleaning instructions.

To reduce waste and provide for bulk stowage, cleaning gear is stocked in and issued from the first lieutenant's storeroom. Each division is periodically issued cleaning gear and is then responsible for its proper stowage and care. Because cleaning compounds and solvents are either flammable or toxic, or both, they must never be left unattended or improperly stowed. You should always read warning labels and follow their directions carefully. Gear, such as brooms and swabs (mops), must be cleaned after each use and placed in their stowage racks. Gear adrift, such as rags, clothing, or personal gear, must be "policed up" immediately. Any items, if left adrift, could cause serious damage to the ship.

SWEEPERS

"Sweepers" is piped shortly after reveille, at the end of the regular working day, and at other times as scheduled. At these times, all persons assigned as sweepers draw their gear and sweep and swab down their assigned areas. All trash and dirt should be picked up in a dustpan and placed in a trash receptacle. If dirt is swept over the side, the wind may blow it back on board or the dirt may stick to the side of the ship. In either case, additional work is necessary to clean the ship. At this time you should empty all butt kits (ensure no butts are still burning) and trash receptacles as instructed. Never dump trash or garbage over the side of the ship without first obtaining permission from the officer of the deck. There are various times when all trash must be kept in a safe area aboard the ship until it can be properly removed.

THE CLEANING PROCESS

Dirt, soil, and contamination all describe the same thing: a foreign material on a surface where it is not wanted. Soil includes grease, oil, tarnish, rust, food residue, and stains. Most exposed surfaces that have been soiled may be cleaned by the proper use of cleaning agents.

Detergents are materials that have the ability to remove contamination and soil. There are other ways of cleaning besides the use of detergents or cleaning compounds. These include purely mechanical processes, such as removing rust from steel by sandblasting or cleaning decks by sweeping. For many cleaning problems chipping, sweeping, sanding, or brushing may be needed. When detergent compounds are coupled with the mechanical action, however, a cleaner surface is usually produced with less time and labor.

The steps used in most detergent cleaning operations are as follows:

1. Wetting—The soil and the surface of the object being cleaned must be wetted. If the surface is not wetted properly, the cleaning results will be poor. Contrary to popular belief, water has very poor wetting properties. Its wetting ability, and therefore its cleaning ability, is improved greatly by the addition of other materials, such as soap or synthetic detergents, which cause the water to flow into tiny crevices and around small particles of soil.

2. Scrubbing—Dirt is loosened by the mechanical action of rubbing or scrubbing. Oil droplets, for example, are emulsified. That is, they are coated with a thin film of soap and prevented from recombining, and then they rise to the surface. In a somewhat similar manner, solid particles are suspended in solution.

3. Rinsing—The rinse is very important. It removes loosened dirt from the surface along with the cleaning material.

FIELD DAY

Periodically, a field day is held. Field day is cleaning day. All hands "turn to" and thoroughly clean the ship inside and out, usually in preparation for an inspection. Fixtures and areas that sometimes are neglected during regular sweepdowns (overhead cables, piping, corners, spaces behind and under equipment, and so on) are cleaned. Bulkheads, decks, ladders, and all other accessible areas are scrubbed. Knife edges and door gaskets are checked; any paint, oil, or other substances are removed; all brightwork is shined; and clean linen is placed on each bunk. Field days improve the appearance and sanitary condition of the ship, aid in the preservation of the ship by extending paint life, and reduce the dirt intake caused by operating equipment. Such dirt intake must be held to a minimum to prevent overheating of electrical equipment and abrasive action in rotating machinery.

Because of weather conditions, there will be many days at sea when the ship's topside areas cannot be cleaned. At the first opportunity, all topside surfaces should be cleaned with freshwater and an inspection made for signs of rust and corrosion. If such signs are discovered, you should tend to the area immediately. A little work at that time will save you a lot of work later.

Deck coverings aboard ship receive more wear than any other material. Unless proper care is given to deck coverings, costly replacement is required. There are several materials used for covering decks, but we will discuss only two: the resilient and the nonslip (nonskid paint) types.

Resilient deck coverings include vinyl tile, vinyl asbestos tile, and linoleum. These deck coverings do not need painting; however, daily sweeping and wiping away spills as soon as possible are required. This type of deck covering is clamped down (cleaned with a damp swab) frequently, allowed to dry, and then buffed with an electric buffering machine. For more thorough cleaning, when the deck is unusually dirty, apply a solution of warm water and detergent with a stiff bristle brush or circular scrubbing machine and rinse with clean water to remove residual detergent. Stubborn dirt and black marks left by shoes can be removed by rubbing lightly with a scouring pad, fine steel wool, or a rag moistened with mineral spirits.

After the deck covering is washed and dried, it can be polished (with or without waxing) with a buffering machine, or it may be given a coat of self-polishing wax and allowed to dry without buffering. Deck coverings can be buffed several times before rewaxing.

No wax should be applied to the deck when the ship is going out to sea or when heavy weather is anticipated. This is an added precaution against slipping, even though the approved floor waxes are designed to be slip resistant.

Nonslip (nonskid paint) deck coverings contain pumice, which helps to provide a better footing. To clean a nonskid painted deck, use a cleaning solution of detergent and dishwashing compound. To make the solution, mix 1 pint of detergent and 5 tablespoons of dishwashing compound; you can mix this compound with freshwater to make 20 gallons of cleaning solution. Apply the solution with a hand scrubber, let it soak for 5 minutes, and then rinse with freshwater. Nonskid deck coverings should not be waxed or painted because to do so will reduce their nonskid properties. If it becomes necessary to spruce up the appearance of a nonskid deck cover, it may be brushed with deck paint diluted with

mineral spirits. The diluted paint should be as thin as possible so that the nonskid properties are not affected.

ZONE INSPECTION

Frequent inspections are held to ensure that all spaces, machinery, and equipment are in a satisfactory state of operation, preservation, and cleanliness. One type of inspection, the zone inspection, divides the ship or station into various sections. Each zone is then assigned to an inspection party or team. Usually the commanding officer will head one team, while an officer or chief petty officer will head each of the remaining teams. If you are assigned to present a compartment, you present the space to the inspecting officer by saluting and greeting the inspector in the following manner: "Good morning (afternoon), sir/ma'am; Seaman Apprentice Frost (your rank and name) standing by compartment (name or number), for your inspection, sir/ma'am." You will then stay with the inspecting officer during the inspection of your spaces to answer questions and provide assistance. Such things as stowage cabinets, lockers, and drawers should be unlocked before the inspection for easy access. Usually the inspecting officer will give an overall grade to the space; for example, a grade of outstanding would indicate that no new discrepancies were noted and all previous discrepancies have been corrected. You can be proud of this outstanding grade.

PAINTING AND PRESERVATION

The Navy uses from 25 to 30 million gallons of all types of paint a year. Roughly 20 million gallons are used for preservation, some of which will be applied by you. Paintbrush purchases also run into millions of dollars. It is no exaggeration to state that millions of man-hours a year are expended in cleaning, chipping, and painting.

To paint a ship's exterior with one coat takes from 20 gallons on a tugboat and 50 gallons on a submarine to as much as 950 gallons on a carrier. The average basic requirements for preservation of a destroyer every 60 to 70 days are 270 gallons. All of this is a way of saying the Navy uses a potful of paint. The more attention you pay to the basic instructions, the less paint you will have to use.

The Navy uses paint primarily for the preservation of surfaces. It seals the pores of steel and other materials, prevents decay, and arrests rust and corrosion. Paint also serves several other purposes. It is valuable as an aid to cleanliness and sanitation because of its antiseptic

properties and because it provides a smooth, washable surface. Paint also is used to reflect, absorb, or redistribute light. For example, light-colored paint on a ship's interior distributes natural and artificial light to its best advantage.

Learning to paint properly requires the selection of suitable paints for the surfaces to be covered, the proper preparation of the surfaces before painting, and the correct methods of applying paint. Though the selection of suitable paints will not concern you at this time, you should know how to prepare the surface and how to apply paint with a brush and roller. Improper surface preparation and paint application, in that order, are the greatest reasons for paint failure.

PAINT

Paint consists of four essential ingredients: pigment, vehicle, drier, and thinner.

Pigment provides the coloring, rust prevention (in primers), and the lasting quality of the paint. The most common pigments are made of metals, such as lead, zinc, or titanium.

The vehicle, usually referred to as the base, is the liquid portion in a paint. It wets the surface being painted, penetrating into the pores, and ensures adhesion. Until recently, the base of most paints was an oil, such as linseed oil, but few paints today contain oils. Some have vehicles of processed oils in combination with synthetic resins; others have vinyl chlorinated bases that are quick drying.

To add to the drying properties of paint, certain metallic compounds, called driers, are added to the paint. When mixed with oil, they act as conveyors of oxygen, which they take from the air and add to the oil, speeding up the drying process.

Thinner are used for thinning the paint to the proper degree for spraying, brushing, or rolling. They also increase the penetration of the paint into the surface and cut down the gloss. Too much thinner greatly affects the durability of the paint. The most common type of thinner is made of mineral spirits, but the proper type to use depends on the paint base. Never use diesel oil or kerosene to thin paint.

TYPES OF PAINT

Paints are of many different kinds, and the Navy constantly works and experiments to improve them. As a result, you are provided the best paints available for the type of surface to be covered. Most Navy paints are

named according to color and/or use, such as exterior gray deck and pretreatment coating (primers).

Primers

Primers are base coats of paint that stick firmly to bare woods and metals, providing a smooth surface for finishing coats. They also serve to seal the pores, and those applied on steel are rust inhibitors as well.

A minimum of two coats of primer should always be used after the surface is cleaned down to the bare metal. A third coat should be added at all outside corners and edges. At least 8 hours of drying time should be allowed between primer coats.

Synthetic Paints

Synthetic resin coatings, such as epoxies, urethanes, and inorganic zinc, are used for areas subject to severe service or exposure, such as bilges, tanks, and decks. The base coating is mixed with a converter (hardener) to cure or harden the paint film.

Exterior Paints

Vertical surfaces above the upper limit of the boot topping (waterline area, painted black) are given two coats of haze gray. Horizontal surfaces are painted with exterior deck gray (darker than haze gray) except the underside of deck overhangs, which are painted white.

A nonskid deck paint is used on main walkways, flight decks, and hangar decks. It contains a small amount of pumice, which helps to give a better footing. Top-hamper areas subject to discoloration from smoke and stack gases and the tops of stacks are painted black.

Interior Paints

Depending on the use of individual compartments, several colors are authorized or prescribed for interior bulkheads, decks, and overheads.

The choice of colors for berthing, messing, and recreation spaces usually is left to the individual ship. All other shipboard spaces are painted the color prescribed by the Naval Sea Systems Command. Deck paint colors, for example, are dark green in the wardroom and officers' quarters, dark red in machinery spaces, and light gray in enlisted personnel living spaces.

Some common bulkhead colors are green for offices, radio rooms, the pilothouse, and medical spaces; gray for the flag plot, the combat information center, and the sonar control room; and white for storerooms and sanitary and commissary spaces. Overhead colors are either the same as the bulkhead or white.

SURFACE PREPARATION

For paint to stick to a surface, all salt, dirt, oil, grease, rust, and loose paint must be removed completely, and the surface must be thoroughly dry.

Salt and most dirt can be removed with soap or detergent and freshwater. Firmly imbedded dirt may require scrubbing with scouring powder. When oil and grease fail to yield to scrubbing, they may be removed with paint thinner or other approved solvents. After scrubbing or scouring, always rinse the surface with freshwater.

EQUIPMENT AND PROCEDURES

The removal of rust, scale, and loose paint requires the use of hand tools or power tools, paint, and varnish removers. Hand tools usually are used for cleaning small areas; power tools are for larger areas and for completely cleaning decks, bulkheads, and overheads covered with too many coats of paint. Paint and varnish removers are used to remove paint from wood.

Hand Tools

The most commonly used hand tools are sandpaper, wire brushes, and hand scrapers. Sandpaper is used to clean corners and to feather paint; that is, taper the edges of chipped areas down to the cleaned surface so that no rough edges remain. Paint will bond best to a clean surface that has been lightly sanded.

Sandpaper is graded according to the size of the abrasive grit on its surface. For example, sandpaper is graded from 12 to 600, the coarsest being 12 and the finest 600 grit. Very fine emery (a natural abrasive) paper is sometimes used to polish unpainted steel surfaces; however, abrasives, such as sandpaper, must never be used on unpainted galvanized metals, brass, copper, nickel, or aluminum surfaces.

A hand wire brush is a handy tool for light work on rust or on light coats of paint. Such a brush also is used for brushing weld spots and cleaning pitted surfaces.

Hand scrapers are made of tool steel. The most common type is L-shaped, with each end tapered to a cutting edge like a wood chisel. They are most useful for removing rust and paint from small areas and from plating less than one-fourth of an inch thick when it is impractical or impossible to use power tools.

Occasionally it is necessary to use a chipping or scaling hammer, but care must be taken to exert only enough force to remove the paint. Too much force dents the metal, resulting in high and low areas. In painting, the paint naturally is thinner on the high areas.

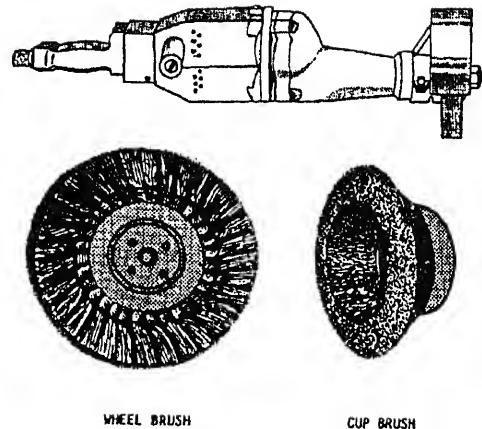


Figure 17-1.—Portable grinder and wire brush.

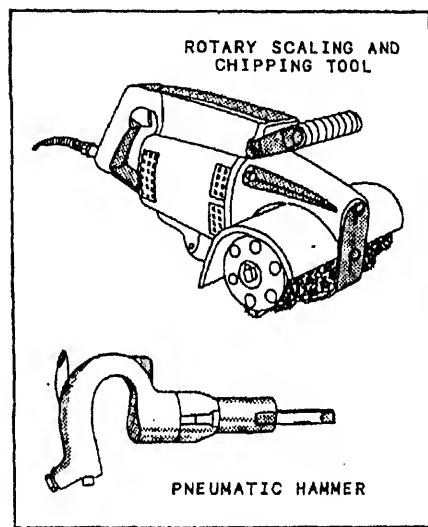


Figure 17-2.—Power scaling tools.

Consequently, thin paint wears off quickly, leaving spots where rust will form and, in time, spread under the good paint.

Portable Power Tools

The most useful of the power tools is the portable grinder shown in figure 17-1. It usually comes equipped with a grinding wheel that may be replaced by either the rotary wheel wire brush or the rotary cup wire brush. Light-duty brushes made of crimped wire will remove light rust. Heavy-duty brushes, fashioned by the twisting of several wires into tufts, will remove deeply imbedded rust.

Scaling may be done by either of the tools shown in figure 17-2. A chisel is used with the pneumatic hammer

denting the surface. The rotary scaling and chipping tool in the illustration (called a deck crawler) has a bundle of cutters or chippers mounted on either side. As it is pushed along the surface to be scaled, the rotating cutters do the work. This tool is particularly helpful on large deck areas.

The electric disk sander is another handy tool for preparing surfaces. However, great care must be exercised in its use. If too much pressure is applied or it is allowed to rest in one place too long, it will quickly cut into the surface, particularly that of wood and aluminum.

Power Tool Safety Precautions

You must be properly trained and qualified before you operate portable power tools. The following safety precautions must be observed when working with electrical and pneumatic (air) tools.

1. Wear eye and ear protection while chipping, grinding, sanding, or wire brushing. If dust is excessive, also wear a respirator. Do not wear jewelry or loose fitting clothing.
2. Do not use defective tools. If you have any doubt about the condition of any tool, show it to your supervisor, who will have its condition determined.
3. Make certain that electrical power tools are grounded properly. Every portable electrical power tool must be provided with a ground lead that connects the tool casing to the ship's structure, and an up-to-date electrical safety tag.
4. Give your full attention to your job.
5. Give electricity the respect it is due—115 volts can and does kill.
6. Do not operate power tools in areas where flammable vapors, gases, liquids, or exposed explosives are present.
7. Do not allow power cords and air hoses to kink or come in contact with oil, grease, hot surfaces, or sharp objects.
8. Do not lay power cords and air hoses over ladders, steps, scaffolds, or walkways in such a manner as to cause a trip hazard.

SURFACES

The Navy uses a variety of metal, metal compounds, and synthetic materials in the process of building a ship or boat. Each type of surface requires special preparation and special primers and paint to extend its life cycle. In the paragraphs below we will discuss various surfaces and the procedures needed to maintain them properly.

Aluminum Surfaces

Aluminum surfaces aboard ship present a special problem because if they are not treated properly considerable corrosion will result. Corrosion is greatest when dissimilar metals (such as aluminum and steel) are in contact with each other and are exposed to an electrolyte (seawater, for example), which causes an electrical current to flow between them, resulting in galvanic corrosion of the aluminum. The first sign of aluminum corrosion is a white, powdery residue in the area where the two dissimilar metals make contact, followed by pitting and scarring of the aluminum surface, finally by complete deterioration of the aluminum in that area. Holes in aluminum plate enlarge; and the screws, bolts, or rivets pull out or may even disintegrate.

Where aluminum is to be joined to other metals, each surface is to be given one coat of pretreatment formula and two coats of primer formula. Never use lead as a primer on aluminum. If the joint is exposed to the weather, insulation tape must be placed between the two surfaces and the joint filled with caulk or compound. When aluminum is joined to wood, the wood is given one coat of phenolic varnish. Any missing fasteners (screws, bolts, rivets, and so on) should be replaced by items of the original type, although replacements of stainless or galvanized steel may be used. When painted aluminum surfaces are prepared for repainting, power sanders, if used, must be used very carefully. It is best to use hand scrapers, hand and power wire brushes, or sandpaper of a very fine grit. NEVER USE SCALING HAMMERS.

Steel Surfaces

The most important task in painting a steel surface is the preparation of the surface to be painted. Steel surfaces to be painted must also be completely free of rust, loose paint, dirt, scale, oil, grease, salt deposits, and moisture. Old paint in good condition is an excellent

base for repainting. When a surface is to be repainted and the old paint is not to be removed, the surface must be smoothed and thoroughly cleaned and dried before new paint is applied.

In touch-up painting, when only small areas or spots need repainting, it is essential that the removal of old paint be carried back around the edges of the spot or area until an area of completely intact paint, with no rust or blisters underneath, is reached. The edges of the remaining paint should then be feathered.

When an old painted surface is to be completely reworked, the old paint should be taken down to bare metal and a primer applied before painting. Never leave a bare metal surface exposed overnight. Always put on a primer coat before you secure for the day.

Fillers

Holes, dents, and cracks in all surfaces and open-grained woods should be filled before they are finished. Putty, wood fillers, and even sawdust mixed with glue can be used on wood. Epoxy fillers are available for use on steel and aluminum surfaces. Their methods of use vary with the type of filler, so the included instructions should be followed carefully. All fillers should be allowed to dry and then sanded smooth before the first finishing coat is applied.

Paint and Varnish Removers

Paint and varnish removers are used mostly on wood surfaces but may be used on metal surfaces that are too thin to be chipped or wire brushed. The three types of removers in general use are flammable, nonflammable, and water-base alkali. They all are hazardous, and their safety precautions must be strictly observed. The removers should be used only in well-ventilated spaces. The alkali type should not be used on aluminum or zinc because of its corrosive properties.

The procedures for using paint and varnish removers are the same regardless of type. You wet the surface with a smooth coat of the remover and permit it to soak in thoroughly until the paint or varnish is loosened and then lift the paint off with a hand scraper. After the surface is cleaned, wet it again with the remover, and wipe it off with a rag. Finally, wash the surface thoroughly with paint thinner or soap and water. This final rinse gets rid of any wax left by the remover and any acids that may have worked into the grain of the wood.

Paint and Varnish Remover Safety Precautions

Paint and varnish removers must never be used around an open flame, because some types are highly flammable. Removers must not be used in confined spaces because their dangerous anesthetic or toxic properties can kill or cause injury if you are exposed to them for long periods. Moreover, paint and varnish removers should not be used by persons having open cuts or sores on their hands unless rubber gloves can be worn. You should avoid letting the remover touch your skin; watch out particularly for your face, eyes, and mouth. If paint or varnish remover should come in contact with the skin, wash it off immediately with cold water; seek medical attention as soon as possible if it gets into your eyes or mouth.

To clean paint or varnish remover from your hands, use soap and water only. Never use turpentine or mineral spirits as hand cleaners because they are absorbed through the skin pores. Gasoline also is dangerous and must never be used.

WHAT NOT TO PAINT

NEVER paint the following items:

1. Start-stop mechanisms of electrical safety devices and control switchboards on machinery elevators
2. Bell pulls, sheaves, annunciator chains, and other mechanical communications devices
3. Composition metal water ends of pumps
4. Condenser heads and outside surfaces of condensers made of composition metal
5. Sprinkler piping within magazines
6. Exposed composition metal parts of any machinery
7. Glands, stems, yokes, toggle gear, and all machined external parts of the valves
8. Heat exchange surfaces of heating or cooling equipment
9. Identification plates
10. Joint faces of gaskets and packing surfaces
11. Lubricating gear, such as oil holes, oil or grease cups, grease fittings, lubricators, and surfaces in contact with lubricating oil
12. Lubricating oil reservoirs

13. Machined metal surfaces (working surfaces) of reciprocating engines or pumps
14. Metal lagging
15. Rods, gears, universal joints, and couplings of valve operating gear
16. Rubber elements of isolation mounts
17. Ground plates
18. Springs
19. Strainers
20. Threaded parts
21. Zincks
22. Working surfaces
23. Hose and applicator nozzles
24. Knife edges; rubber gaskets; dogs; drop bolts; wedges; and operating gear of watertight doors, hatches, and scuttles
25. Electrical contact points and insulators
26. The original enamel, lacquer, or crackle finish on all radio, electrical, and sound equipment, unless existing damage makes refinishing essential
27. Decorative plastic, such as tabletops

4. Use only explosion-proof lights near painting operations.
5. Do not wear nylon, orlon, or plastic clothing or covering. These materials generate static electricity, which may spark and ignite paint vapors.
6. Do not carry matches or cigarette lighters or wear steel buckles or metal shoe plates. Too often one forgets and strikes a match or lights a cigarette lighter in areas filled with explosive vapors. Also, steel buttons, buckles, and tabs can strike sparks that are invisible to your eyes but are capable of igniting paint vapors.
7. When pouring solvents, make sure the containers are touching each other to prevent sparks.
8. Never paint during electrical storms.
9. Keep food and drink away from areas being painted.
10. Do not use gasoline, turpentine, mineral spirits, or other solvents to remove paint from the skin, as the skin will absorb them.
11. Follow carefully the instructions of your supervisor.

PAINT ISSUE

PAINTING SAFETY PRECAUTIONS

Painting can be dangerous if one is careless. Many paints are highly flammable, others are poisonous, and some are both flammable and poisonous. To increase your chances of remaining alive and healthy, observe the following precautions:

1. Keep paint off your skin as much as possible. Wash your hands, arms, and face with soap and warm water before eating. Do not put your fingers, food, or cigarettes in your mouth if they are contaminated with paint.
2. Be sure you have adequate ventilation, and wear an approved paint/spray respirator whenever there is reason to believe the ventilation is inadequate in the place you are painting. At the first sign of dizziness, leave the space and get to fresh air.
3. Do not smoke, use an open flame, or use spark-producing tools in the vicinity of painting operations.

Before paint, primers, or paint applicators are issued, a paint request chit must be completed. This procedure is necessary to reduce the waste of materials and time spent redoing a paint job. Your division petty officer will inspect the area to be painted to ensure that all preparations have been properly made. For example, are all items not to be painted properly identified or masked? Are all safety precautions understood and properly observed, and is the surface ready to be painted? Having checked out these items, fill out the paint request and describe the area to be painted, including the paint color, type, and approximately how much paint is needed. Your division officer may also inspect the area to be painted before signing the paint chit. The next step is the approval of the request by the first lieutenant, who regulates the issue of paint.

As you can see, the steps involved with getting ready to paint could sometimes take longer than the actual painting. Remember, if you spill paint (oil, grease, and so on), you are responsible for cleaning it up. At the end of working hours, all paint and brushes must be returned to the paint locker. Paint must be stored

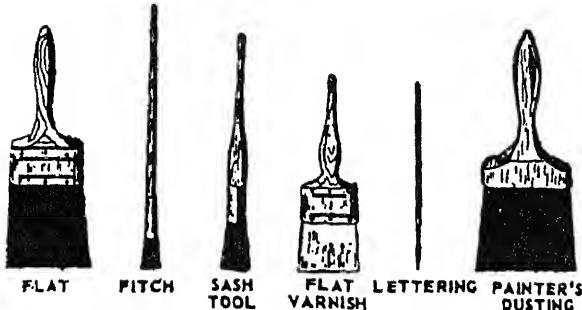


Figure 17-3.—Types of brushes.

in its proper container, and all brushes and rollers cleaned as described later in this chapter.

PAINTING

Three means of applying paint are used in the Navy: brush, roller, and spray. The majority of sailors have no occasion to use paint sprayers; hence, we will not devote space to them or their use. Instead, we will concentrate on brushes and rollers, with which everyone in the Navy should be familiar.

Paint Application by Brush

Smooth and even painting depends as much on good brushwork as on good paint. There is a brush for almost every purpose, so use the proper brush and keep it in the best condition.

The two most useful brushes are the flat brush and the sash tool brush. These brushes and some others commonly used aboard ship are shown in figure 17-3. With a flat brush, a skillful painter can paint almost anything aboard ship. Flat brushes are wide and thick, carry a large quantity of paint, and provide a maximum of brushing action. Sash brushes are handy for painting small items, for cutting in at corners, and for hard-to-get-at spaces. The fitch brush also is useful for small surfaces. The painter's dusting brush is used for cleaning surfaces.

The following are some general hints to help you use a paintbrush properly:

1. Grip the brush firmly, but lightly, as shown in figure 17-4. Do not put your fingers on the bristles below the metal band (ferrule). The grip shown permits easy wrist and arm motion. To hold it otherwise restricts your movements and causes undue fatigue.

2. When using a flat brush, do not paint with the narrow edge. This practice wears down the corners and spoils the shape and efficiency of the brush. When using

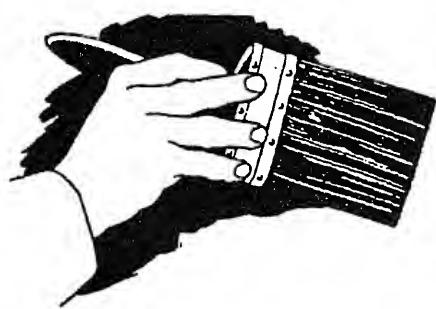


Figure 17-4.—Correct way to hold a brush.

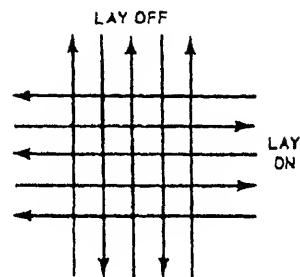


Figure 17-5.—Laying on and laying off.

an oval brush, if you revolve it too much, it soon wears to a pointed shape and becomes useless. Do not poke oversized brushes into corners and around moldings. Such a practice bends the bristles, eventually ruining a good brush. Use a smaller brush that fits into such odd spots.

3. Dip the brush into the paint, but not over halfway up the bristles. Remove the excess paint by patting the brush on the inside of the pot. (Avoid overfilling the brush; otherwise, paint will drip on the deck or other surfaces and run down the handle.)

4. Hold the brush at right angles to the surface being painted, with the ends of the bristles just touching the surface. Lift the brush clear off the surface when starting the return stroke. If the brush is not held correctly and is not lifted, the painted surface will be uneven, showing laps and spots and a daubed appearance. Also, a brush that is held at any angle other than a right angle will soon wear away at the ends.

For complete and even coverage, follow the Navy method and first lay on, then lay off. "Laying on" means applying the paint first in long strokes in one direction. "Laying off" means crossing your first strokes. The proper method is shown in figure 17-5. By using the

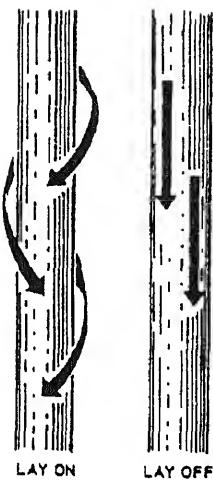


Figure 17-6.—Painting pipes and stanchions.

recommended Navy method and crossing your strokes, the paint is distributed evenly over the surface, the surface is covered completely, and a minimum amount of paint is used.

Always paint the overhead first, working from the corner that is farthest from the entrance to the compartment. By painting the overhead first, you can wipe drippings off the bulkhead without smearing the bulkhead paint.

When overhead surfaces are being painted, sections should normally be painted in a fore-and-aft direction; beams, in an athwartship direction. But where sections of the overhead contain many pipes running parallel with the beams, it is often difficult to lay off the paint in a fore-and-aft direction. In such situations, better results are obtained by laying off the paint parallel with the beams.

To avoid brush marks when finishing up an area you have painted, use strokes directed toward the last section finished, gradually lifting the brush near the end of the stroke while the brush still is in motion. Every time the brush touches the painted surface at the start of a stroke, it leaves a mark. For this reason, never finish a section by brushing toward the unpainted area. Instead, always end up by brushing back toward the area already painted.

When painting pipes, stanchions, narrow straps, beams, and angles, lay the paint on diagonally, as shown in figure 17-6. Lay off along the long dimension.

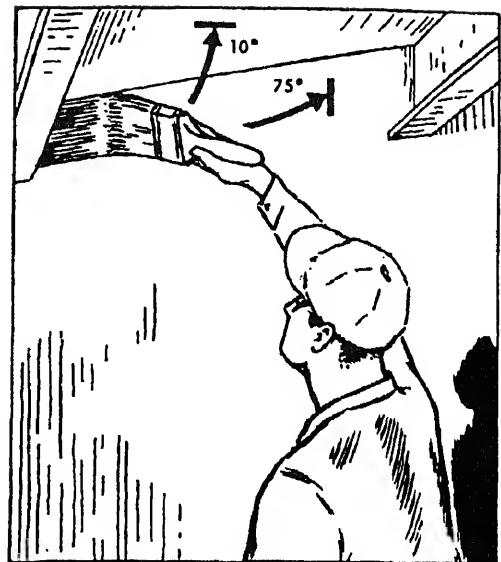


Figure 17-7.—Cutting in.

Always carry a rag for wiping up dripped or smeared paint. Carefully remove loose bristles sticking to the painted surface.

Cutting In

After you master the art of using a paintbrush properly, you should learn to cut in. Cutting in is a simple procedure, and anyone with a fairly steady hand can learn it in a short time.

Suppose you have to cut in the angle between an overhead and a bulkhead, as shown in figure 17-7. Start at one corner. Hold your brush at an angle of about 76 degrees to 80 degrees from the bulkhead and about 10 degrees from the overhead. Draw your brush along in fairly long, smooth strokes. This is one job where working slowly does not produce better results. The slower you stroke, the wavier your line will be.

Use of Rollers

The type of paint roller used in the Navy is equipped with a replaceable cylinder of soft fabric over a solvent-resistant paper core. It rotates on the shaft of a corrosion-resistant steel frame. A roller handle and various replaceable refills are shown in figure 17-8.

Large areas, such as ships' decks and sides (free of rivets, bolts, cable, pipes, and so on), can be covered with paint quickly by the roller method. The paint should be laid on and laid off in the same fashion as when

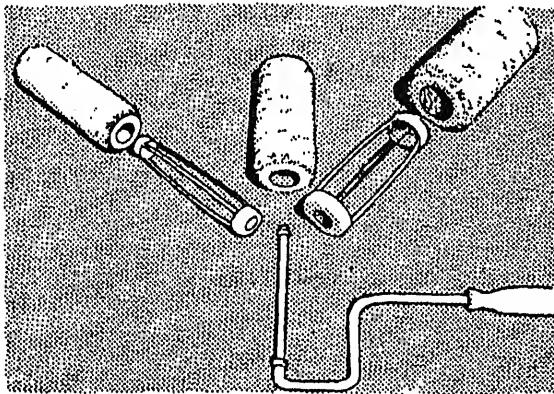


Figure 17-8.—Parts of a paint roller.

brushes are used. A moderate amount of pressure must be applied to the roller to make sure the paint is worked into the surface. If pressure is not applied, the paint does not stick and soon peels off. When the paint roller is properly used, it will apply a more even coat and use less paint than is possible with a brush.

CARE OF BRUSHES AND ROLLERS

Unfortunately, far too many good paintbrushes and rollers are ruined simply because painters have little or no idea how to care for them, or they are too lazy to clean them. Consequently, you should pay particular attention to the following hints, and heed them at all times. Treat applicators as though you paid for them yourself, and replace them when they no longer are usable.

Do not let a brush stand on its bristles in a pot of paint for more than a few minutes. The weight of the brush bends the bristles, making it almost impossible to do a good job. Never allow paint to dry on a brush. If you intend to leave a paint-filled brush for long periods, as over the noon hour, fold wax paper or other heavy paper around the bristles and ferrule in such a way that air is kept away from the bristles. Twist the paper around the handle and secure it with rope yarn or sail twine. Cover your pot of paint, and place both it and the brush in a safe place. Before starting to paint again, stir the paint thoroughly with a paddle—not the brush. At the end of the day, before turning in your paint and brush to the paint locker, clean as much paint from the brush as possible by wiping it across the edge of the paint pot or mixing paddle.

Ordinarily, the person or persons working in the paint locker will clean and stow the brushes turned in. Occasionally, though, they require help, and you may be

detailed to the job. If so, follow instructions carefully, and do a thorough job of cleaning the brushes.

Paint lockers usually have containers with divided compartments for stowing different types of brushes (that is, paint, varnish, shellac, and so on) for short periods of time. These containers normally have tight covers and are equipped for hanging brushes so that the entire length of the bristles and the lower part of the ferrule are covered by the solvent or cleaner oil kept in the container. Brushes are suspended so that the bristles do not touch the bottom, thus preventing them from becoming permanently misshapen.

Brushes to be used the following day should be cleaned in the proper cleaner and placed in the proper compartment of the container. Those not to be used again soon should be cleaned, washed in soap or detergent and water, and hung to dry. After drying, they should be wrapped in heavy paper and stowed flat. Do not leave a brush soaking in water. Water causes the bristles to separate into bunches, flare, and become bushy.

The proper cleaners for paint applicators are as follows:

<u>Paint/Finish</u>	<u>Solvent/Cleaner</u>
Natural and synthetic oil-base paints and varnishes; chlorinated alkyd resin paints	Turpentine or mineral spirits
Latex emulsion paints	Water
Chlorinated rubber paints	Synthetic enamel thinner xylene
Shellac	Alcohol (denatured)
Lacquer	Lacquer thinner

Paint rollers are cleaned in a different fashion. After use, the fabric cylinder should be stripped from the frame, washed in the cleaner recommended for the paint used, washed in soap and water, rinsed thoroughly in freshwater, and replaced on the frame to dry. Combing the pile of the fabric while it is damp prevents matting.

SUMMARY

We live close together aboard ship. The daily routine of cleaning the berthing compartment and head areas is not only beneficial for our own welfare but for our shipmates as well. It also makes those long cruises easier if we take the time to make our living spaces as

pleasant as possible. The occasional zone inspection will help in keeping all our spaces up to speed. Looking for problems that exist, or ones that could arise in the future, will benefit us all.

We also discussed some of the more important aspects of surface preservation. Most of our ships serve for over 20 years, and in the case of carriers, over 30 years. That is testimony to how well the Navy cares for its ships. This care would not be possible without personnel having the proper equipment and materials, being properly trained in the correct application of these

materials, and taking pride in doing a good job. Anyone can paint, but taking that extra step to ensure the assigned job is completed with the best possible results is the difference in a job that really looks sharp and one that just gets by.

REFERENCES

Boatswain's Mate, Volume 1, NAVEDTRA 10101, Naval Education and Training Program Management Support Activity, Pensacola, Fla., 1989.

CHAPTER 18

SMALL ARMS

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe safety precautions to be observed when handling small arms.
2. Define the required precautions for preventing hearing loss or eye injuries when in the vicinity of or when firing small arms.
3. Describe body positions when firing the service rifle and pistol from different positions.

A number of duty assignments in the Navy may require you to be armed with a rifle or pistol. Examples of shipboard duty assignments may include the forecastle, fantail, and pier sentry watches, quarterdeck, and magazine security watches; examples ashore may include base security forces and duties of Seabee personnel. Although none of these assignments may include your normal watch standing duties, you may be required to support these or other security forces at any time. For this reason, you must be familiar with the proper use and care of small arms.

Strictly defined, the term *small arm* means any firearm of .60-caliber, 15-mm, or smaller bore. However, the term is generally considered to mean a weapon intended to be fired from the hand or shoulder, such as a rifle or a pistol.

At most naval commands, the small arms carried by security watches are maintained by armory personnel. These are the people who should give you instructions on the proper use and handling of small arms.

SMALL ARMS SAFETY PRECAUTIONS

Before you learn to use any firearm, you must learn to handle it safely. The first thing to learn and remember is that firearms are dangerous. Their purpose is to kill or to cause injury.

Every firearm in use by the Navy has some type of safety device built into it; some have more than one. The safety device guards against accidental discharge of a firearm. In almost every case of accidental shooting, negligence or carelessness is the prime cause. A weapon

is only as safe as the person using it. Learn to respect each firearm as a deadly weapon.

The following general precautions are applicable when you handle any type of firearm:

1. Treat every weapon with respect. Consider it to be loaded until it is proved otherwise.
2. Never point a weapon at anything or anyone you do not intend to shoot.
3. Always make sure that the bore is clear and that all oil and grease have been removed from the barrel and chamber before firing.
4. Use only the proper size of ammunition.
5. Unload firearms before transporting them to and from a shooting area.
6. Always carry the firearm so as to control the direction of the muzzle. Keep the muzzle pointed in a safe direction until ready to fire.
7. Keep the safety on until you are ready to shoot.
8. Never shoot until you have positively identified the target.
9. Unload unattended weapons. At home, store firearms (with trigger locks installed) and ammunition out of the reach of children.
10. Do not climb trees or fences with a loaded firearm.
11. Do not pull a firearm toward you by the muzzle.



Figure 18-1.—Circumaural (Mickey Mouse) type of ear protector.

12. Avoid shooting a rifle over a hard, flat surface or body of water because of possible erratic and lengthy bullet ricochets.
13. Like oil and water, firearms and alcohol do not mix. Do not drink alcoholic beverages or partake of any narcotic or drug before or during shooting activities.
14. Know your weapon—its shooting characteristics, its safeties, and its loading and unloading procedures.

15. Never indulge in horseplay when carrying a firearm.

In addition to applying these safety precautions when handling and using firearms, you should also take steps to protect your hearing and sight, particularly when you are exposed to repeated small arms fire such as that on a rifle or pistol range. Blast noise from small arms fire may cause a temporary or permanent hearing loss. The extent of injury depends on a number of factors, such as intensity of the noise, length of exposure, and your own sensitivity to noise hazards.

Two general types of personal ear protective devices are used to reduce noise and thus protect the ear. These are the insert type (earplug) and the circumaural type (covers the entire outer ear). The circumaural type is sometimes referred to as "Mickey Mouse ears."

If you work in a noise hazard area, you may have been fitted with a pair of earplugs. It is important to have the plugs fitted by a qualified member of the medical department because of the differences in size and structure of the ear's auditory canals among individuals.

The Mickey Mouse type, as shown in figure 18-1, is made with rigid plastic ear cups lined with foam plastic or rubber to provide a comfortable seal around the outer ear. The cups are connected over the head via an adjustable spring type of headband for a snug fit.

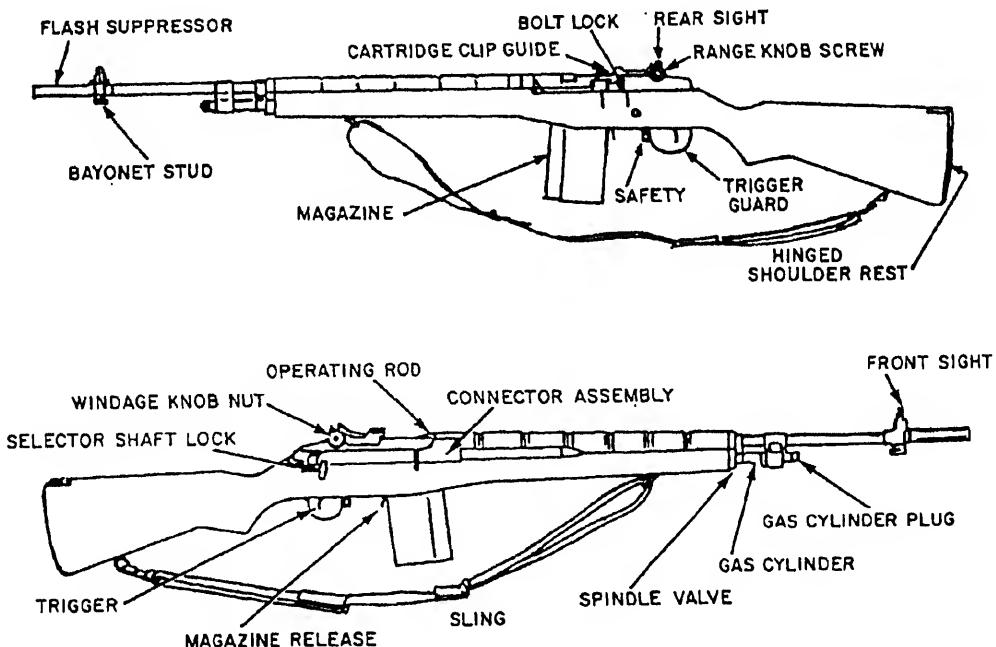


Figure 18-2.—Rifle, 7.62-mm M14.

The protection of your sight is just as, or perhaps more important, than protecting your hearing. The Navy has several types of safety glasses and goggles that provide adequate protection from the danger of small arms. These range from the standard safety goggles used in everyday work to prescription safety glasses.

When you are on the range, be sure to use these protective devices so that tomorrow you will be able to see and hear the full spectrum of sounds and sights you see and hear today.

TYPES OF SMALL ARMS

The discussion in this chapter will be limited to the following types of small arms: rifles, 7.62-mm M14 and 5.56-mm M16A1; revolver, .38 caliber; pistols, .45 caliber and 9-mm caliber.

THE M14 RIFLE

One rifle presently in use by the Navy is the 7.62-mm M14 (fig. 18-2). The rifle is a lightweight, air-cooled, gas-operated, magazine-fed shoulder weapon. It is designed for semiautomatic or automatic fire at the rate of 750 rounds per minute. The rifle is chambered for the 7.62-mm NATO cartridge and is designed to accommodate a 20-round magazine, the M76 grenade launcher, and the M6 bayonet.

The overall length of the rifle (with flash suppressor) is 41.31 inches. The weapon has a muzzle velocity of 2,800 feet per second and a maximum range of 4,075 yards. Empty, the rifle weighs about 9 pounds. Fully loaded and ready to fire, the rifle weighs about 11 pounds.

Rifle Controls

The following paragraphs describe the various controls provided for the operation of the rifle. The selector is located on the right side of the receiver just below the rear sight. Its purpose is to set the rifle to fire as semiautomatic. When the selector is positioned with the face marked "A" toward the rear and the projection upward, the rifle is set for automatic fire. When the face marked "A" is away from the marksman, the weapon is set for semiautomatic operation.

The trigger and sear assembly is located inside the guard assembly and is part of the firing mechanism. Its purpose is to control the weapon in the selected method of operation (semiautomatic or automatic).

The safety is located on the firing mechanism near the guard assembly. When pressed to its rear position, it

locks the trigger, sear, and hammer, preventing firing of the rifle. The safety must be pressed to the forward position before the weapon can be fired.

The gas spindle valve is located at the front end of the stock and is connected to the gas cylinder. Its purpose is to control the gases used in firing a rifle or a rifle grenade. When the slot of the spindle valve is in the vertical or ON position, the spindle valve is open, releasing gases necessary for the rifle to function. When the slot is in the horizontal or OFF position, the spindle valve is closed. That permits full pressure of the gas to be used in propelling the rifle grenade and prevents the bypass of gas into the gas cylinder.

The windage knob is located at the right rear of the receiver. Its purpose is to adjust the movement of the rear sight to the right or left.

The range knob is located at the left side of the receiver and is calibrated in meters. Its function is to adjust the elevation of the sighting aperture.

The operating rod handle, located on the right-hand side of the receiver, is used to operate the rifle by moving the operating handle to the rear position and releasing it. That permits the force of the magazine spring to position the top round from the magazine into the chamber of the rifle. As the operating rod moves the bolt forward, the bottom face of the bolt engages the base of a cartridge, ramming it forward and feeding, chambering, and locking it in the barrel.

Loading

To load the rifle, insert the front end of a loaded magazine into the magazine well, as shown in figure 18-3, until the front catch snaps into engagement. Then

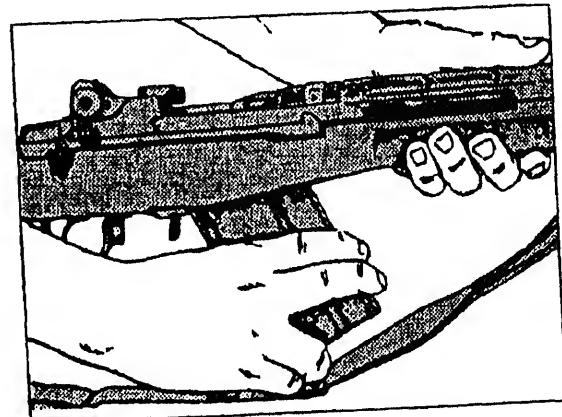


Figure 18-3.—Loading magazine into rifle.

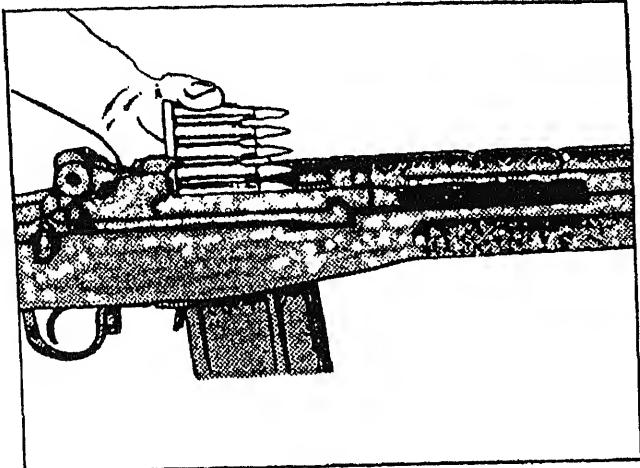


Figure 18-4.—Loading magazine with clip.

pull the magazine rearward and upward until the magazine latch locks the magazine in position. There are several methods that can be used in loading the magazine itself. One method is shown in figure 18-4.

Field Stripping the Rifle

Field stripping is the term applied to general disassembly of a weapon for ordinary care and cleaning. Detailed disassembly, where the firearm is taken completely apart, is done only by Gunner's Mates or other qualified personnel.

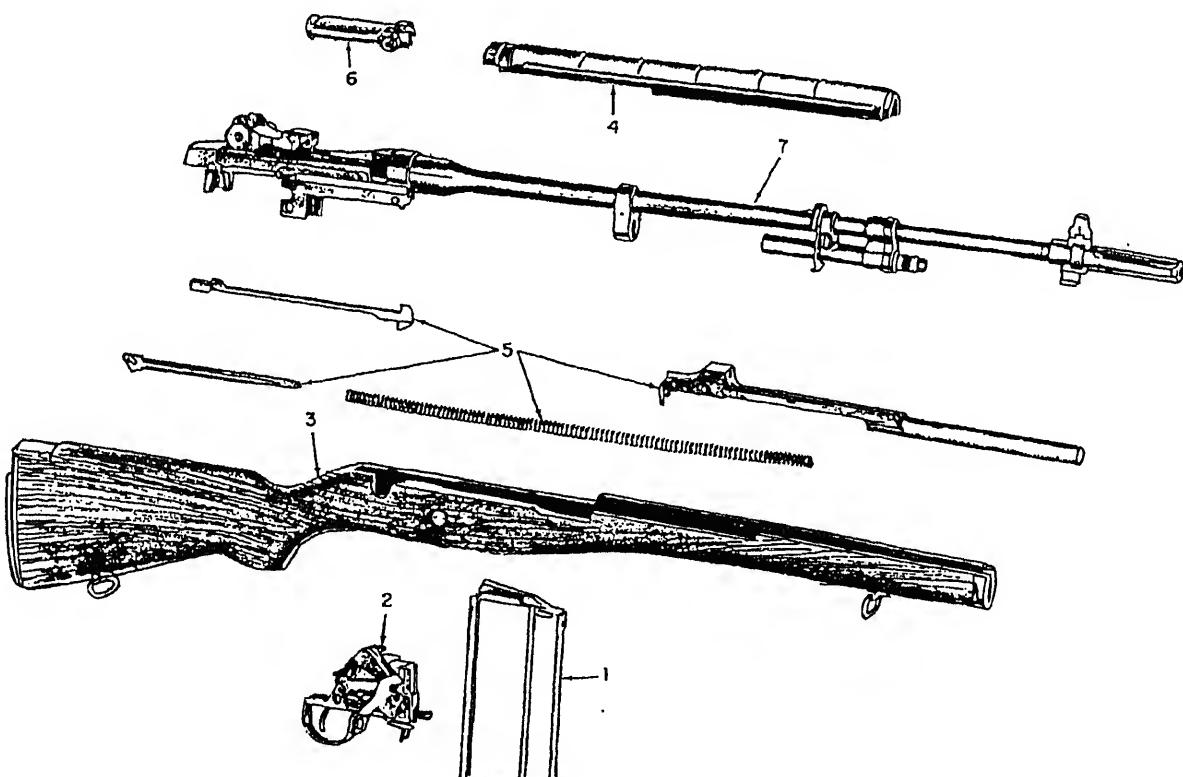
Proper disassembly and reassembly is covered in the technical manual for the weapon you are using and should be done under proper supervision.

Figure 18-5 shows an exploded view of the groups and assemblies of the M14 rifle.

Cleaning the Rifle

A complete set of maintenance equipment is stored in the stock of the M14 rifle. This maintenance equipment is shown in figure 18-6.

The rifle must be cleaned after firing because firing leaves primer fouling, powder ashes, carbon, and metal fouling in the chamber and bore. The

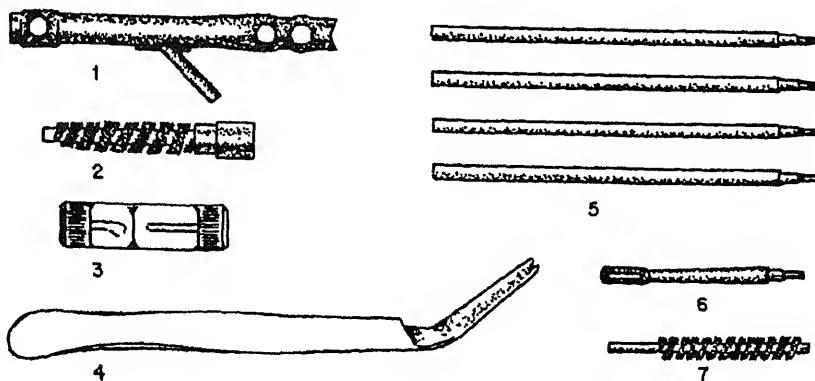


- 1. Magazine
- 2. Firing mechanism

- 3. Stock with butt plate assembly
- 4. Handguard assembly

- 5. Operating rod and connector group
- 6. Bolt assembly
- 7. Barrel and receiver group

Figure 18-5.—Group assemblies.



1.

COMBINATION TOOL

2. CHAMBER CLEANING BRUSH

(ENSURE THE M14 CHAMBER BRUSH IS USED TO PREVENT BARREL DAMAGE. THE M14 BRUSH IS 1/2 INCH SHORTER THAN THE M1 CHAMBER BRUSH.)

3. PLASTIC CASE LUBRICANT

4. SMALL ARMS CLEANING ROD CASE

5. SMALL ARMS CLEANING ROD SECTION (4 EACH)

6. CLEANING PATCH HOLDER

7. SMALL ARMS BORE CLEANING BRUSH

Figure 18-6.—Maintenance equipment.

ammunition has a noncorrosive primer, which makes cleaning easier but not less important. The primer still leaves a deposit that may, if it is not removed, collect moisture and promote rust. Disassembly, assembly, and cleaning procedures should be done under the strict supervision of armory personnel until you are completely familiar with the proper procedures.

Sighting

To hit a target accurately, you must have the proper sight picture each time you fire. In this section, we will discuss how to attain the proper sight picture. (Other factors affecting accuracy, such as trigger squeeze and breathing, are explained later.)

SIGHT ALIGNMENT.—Figure 18-7 shows the proper sight picture for the peep sight used on the M14 rifle. In aiming, you are concerned with pointing the rifle correctly so that the bullet will strike the target when the rifle is fired. To do that, you must have the rear sight, the front sight blade, and the target or aiming point in their proper relationship—known as the sight picture. A correct sight picture is obtained when the sights are perfectly aligned and the target is in the correct relationship with the front sight blade. The sight picture includes two basic elements: sight alignment and placement of the aiming point or target.

To obtain the correct sight alignment, align the sights as shown in figure 18-8. Notice that the top center of the front sight blade is exactly in the center of the rear

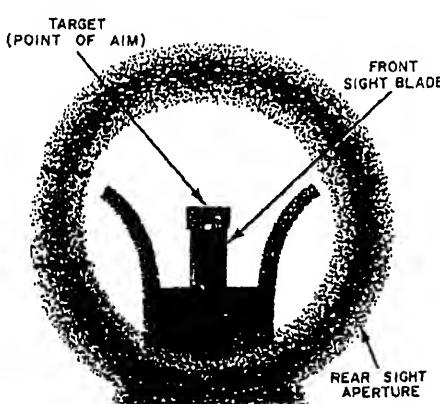


Figure 18-7. Improper sight alignment.

Figure 18-8. Correct sight alignment.

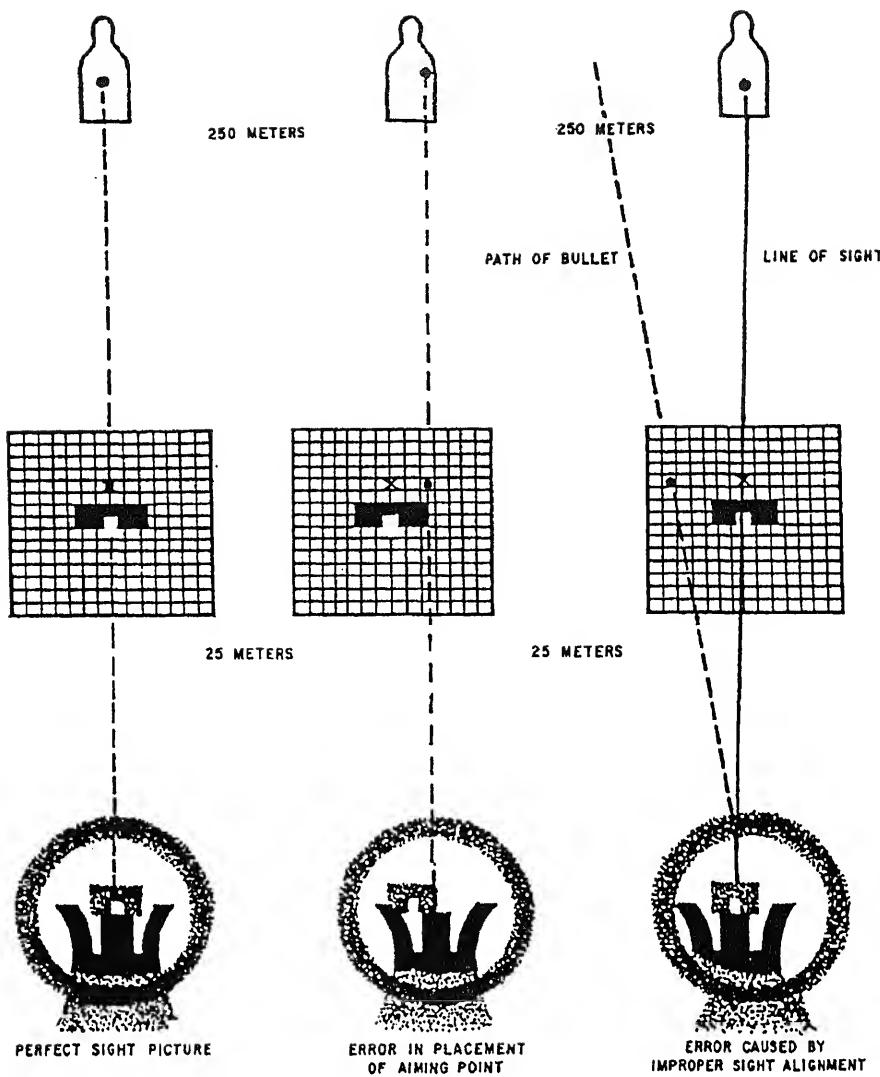


Figure 18-9.—Importance of correct sight alignment.

sight aperture. If an imaginary horizontal line were drawn through the center of the rear sight aperture, the top of the front sight blade would touch this line. If an imaginary vertical line were drawn through the center of the right sight aperture, the line would cut the front sight blade. You should ensure that perfect sight alignment is attained by focusing your attention and eye on the front sight blade through the indistinct or fuzzy appearing rear sight aperture. By doing that, you can detect and easily correct any errors in sight alignment.

The aiming point (the target on which you have aligned your rifle sights) is correctly placed when it is centered on and appears to touch the tip of the front sight blade. If the aiming point is correctly positioned, an imaginary vertical line drawn through the center of the

front sight blade will appear to cut the aiming point in half.

If you understand the principles of aiming, you will experience little difficulty in hitting the target because of aiming errors. The two most common aiming errors are incorrect sight alignment or improper placement of the aiming point. The reason for these errors lies in the shooter's inability to focus the eye on two objects at different distances at the same time.

If you focus your eye on the aiming point, the rifle sights will appear hazy and indistinct and, vice versa; if you focus your eye on the rifle sights, the aiming point will appear hazy. Therefore, you must understand which is more important—sight alignment or the placement of the aiming point. An error in either can cause the bullet to miss the aiming point.

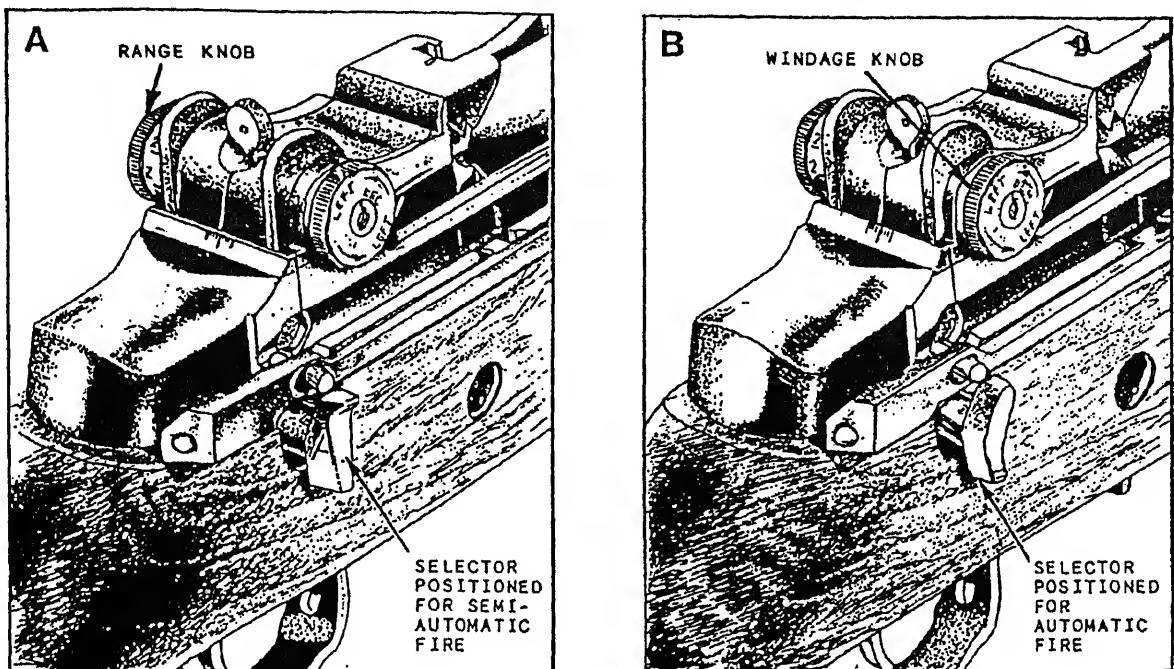


Figure 18-10.—Rear sight and fire selector of the M14.

An error in sight alignment will result in an error that increases proportionately as the range to the target increases. A slight error in sight alignment could cause the fired projectile to miss a man-size target by as much as several feet, depending on the range.

An error in placement of the aiming point may result in a near miss on the battlefield but may still be considered a point-of-aim hit. For example, a person is approximately 20 inches wide. Consequently, you could be several inches off the desired aiming point (center of the visible mass) and still hit an enemy soldier. Thus, the correct relationship between the front sight blade and the rear sight aperture (sight alignment) is much more important than the placement of the aiming point. Figure 18-9 illustrates the importance of proper sight alignment.

Since it is so important to obtain and hold perfect sight alignment when shooting, you should concentrate on it as the first and last steps in aiming. That is, concentrate on getting perfect sight alignment; then establish the proper placement of the aiming point to complete the sight picture. Finally, as you start to squeeze the trigger, concentrate again on maintaining perfect sight alignment.

Try not to breathe while aiming or firing; the rise and fall of your chest will deflect the muzzle. Take a

breath, let out a little air, and then hold your breath until the round is fired. If you do not fire within 10 seconds, do not shoot; take several breaths and start the aiming procedure again.

SIGHT ADJUSTMENT.—The rear sight is adjustable and ensures accuracy up to a maximum effective range of about 500 yards. An elevating adjustment knob (range knob) is on the left side of the sight and a windage adjustment knob is on the right.

The elevation, or range knob, as shown in figure 18-10, view A, has a scale in 100-yard intervals. The even distances (200 through 1,200 yards) are marked and numbered on the scale; the odd distances (100 through 1,100 yards) are shown as index lines between the numbers. The windage knob is shown in view B of the figure. The index for this scale appears as the long, vertical line at the rear sight aperture. Arrows on the knobs show the direction to turn them to move the sights up, down, right, or left.

The principle of adjustment is simple: Move the sight in the direction you want to move the bullet's point of impact. If you are shooting below the target, raise the sight; if you are shooting high, lower it. The same goes for windage. If there is a crosswind, you must allow for it. If the wind is blowing from your right, for instance, you compensate for it by moving the sight to the right.

Both adjustment knobs use a click mechanism. These clicks can be felt as the knobs are rotated. One click of either knob represents an adjustment at the target of 1 inch for each 100 yards of range. If the range is measured in meters, 1 click represents approximately 3 centimeters for each 100 meters of range. An easy method for computing adjustments on a meter range is to multiply the distance in hundreds of meters times 3. At a range of 200 meters (about 220 yards), for example, 1 click represents 6 centimeters, or a little over 2 inches.

ZEROING THE RIFLE.—Generally speaking, no two rifles will produce the same shot grouping for the same sight setting. This difference in groups is caused by small differences in each rifle and the manner in which the rifle is held by different individuals. The sight setting used by one person, for instance, will not necessarily be the same as that used by another person. Each individual must therefore zero his or her own rifle. The zero of a rifle is the setting in elevation and deflection at a given range that enables you to hit the center of the bull's-eye when no wind is blowing.

The recommended procedure for zeroing your rifle is as follows (rifle zero should be determined for several ranges):

1. Place 10 clicks of elevation and no deflection on the rear sight; fire three shots.
2. Make necessary sight adjustments to bring the center of the three-shot group to the center of the bull's-eye, and fire three more shots.
3. Continue adjustments as necessary to get the group centered in the center of the bull's-eye. The final sight setting is the zero of a rifle for that range.

Firing

The fast mechanical action of the M14 rifle enables a group of firers to maintain a heavy volume of fire. Firepower alone, however, is not of much benefit without accuracy. You have learned how to sight and aim your rifle; now you will learn how to fire it.

TRIGGER SQUEEZE.—Although proper sight alignment is necessary, correct trigger squeeze is equally important. You may have the target and sights lined up exactly, but if you jerk the trigger, you will miss the target. Pressure on the trigger must be applied straight back; any sideways pressure causes a deflection of the shot. Increases of pressure applied jerkily, instead of smoothly, make it impossible to hold the aim.

Another reason for missed shots is flinching. Flinching is caused by involuntary bracing of the muscles to withstand the shock of the recoil. Because the recoil is anticipated, the bracing takes place in the instant before the rifle is fired, and this tension disturbs the aim. Flinching is the natural reaction to an expected blow of any kind, even if the blow is very light. It is so natural, in fact, that most persons who flinch do not realize when they have done so. To overcome this tendency to flinch, squeeze the trigger so steadily that you cannot tell at which instant the rifle will fire. If you do not know when the rifle will fire, you will not flinch.

When you are in position and ready to fire, align your sights on the target and take up the trigger slack, using the two end joints of your index finger. Take a breath of air, expel part of it, and hold the rest. Squeeze the trigger with firm pressure. Continue the steady movement of your trigger finger straight to the rear until the rifle fires. If the shot fires before you expect it, the shot should be good. The sequence of shooting is take up slack, breath, aim, squeeze.

The important points in trigger squeeze are as follows:

1. Squeeze with the finger only.
2. Once the slack is taken up, press firmly and continuously straight back to avoid pulling the sights out of alignment.
3. Concentrate your attention on the sight picture and let your finger work automatically. Every shot should come as a surprise to you; otherwise you will instinctively brace yourself to meet the recoil. This tensing will throw off your aim.
4. Squeeze the trigger the same way for sustained fire as you would for slow fire. Never sacrifice accuracy for speed.
5. Follow through on your shots. Keep your mind and muscles concentrated on your shot for an instant or two after your rifle fires. In this moment you can form a clear mental picture of all the elements that may have affected your shot. The practice of follow-through also will correct the common tendency to pull away from the rifle too quickly after firing.

FIRING POSITIONS.—The standard firing positions taught in the Navy are prone, sitting, kneeling, and standing. At first you may have difficulty in assuming some of these positions, but this difficulty disappears with practice. These positions have been standard for many years and were selected because they

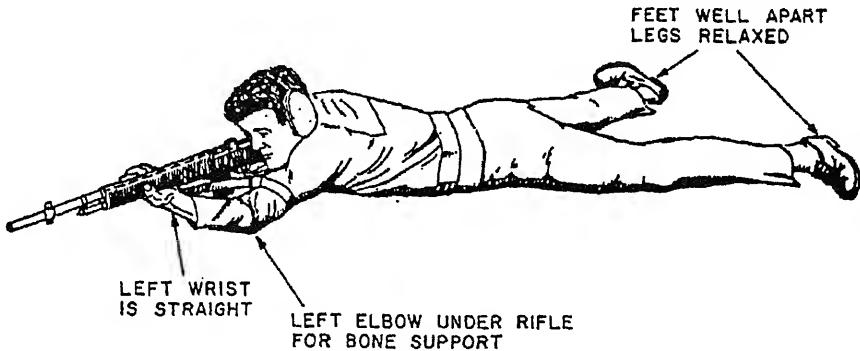


Figure 18-11.—Prone position.

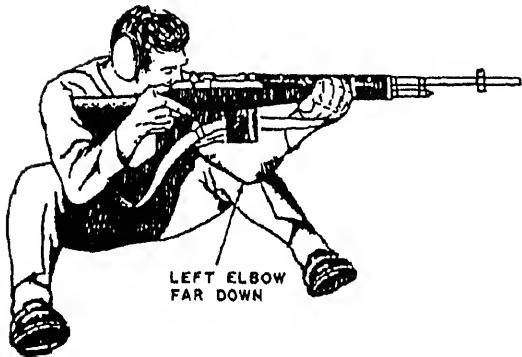


Figure 18-12.—Sitting position.

produce excellent results with personnel of all physical types.

Prone.—The prone position is natural to assume, steady, and comfortable. In combat, this position presents the smallest target to an enemy.

Note in figure 18-11 that when you are in position, your body faces roughly 30 degrees to the right of the line of fire. Both elbows are on the ground, the rifle supported by the left elbow. Do not "dig in" with your toes. Keep your feet well apart and your legs relaxed.

Sitting.—The sitting position (fig. 18-12) is useful when you are firing downhill or from places where you cannot see the target when prone (in high grass, for example).

The body faces about 45 degrees to the right of the line of fire. In assuming the sitting position, spread your legs apart to a comfortable distance and dig your heels into the ground slightly to prevent slipping. Place your left elbow far down on the side of your left shinbone.



Figure 18-13.—Kneeling position.

When firing, have your back bent well forward. In general, the farther down the left elbow is on the shinbone, the steadier you will be. The left elbow should be directly under the rifle.

Kneeling.—The kneeling position is used frequently on ground that slopes upward, or when there is no time to assume a prone position.

Take position by half facing to the right and dropping on the right knee, as illustrated in figure 18-13. The lower part of your left leg should be nearly straight up and down. Sit back on your right heel or the inside of your right foot, whichever position is more comfortable. Place the flat of your left elbow over your left knee.

Standing.—Standing is an attack position; in combat, you would assume it quickly, fire, and then move forward. It is the least steady of the four standard

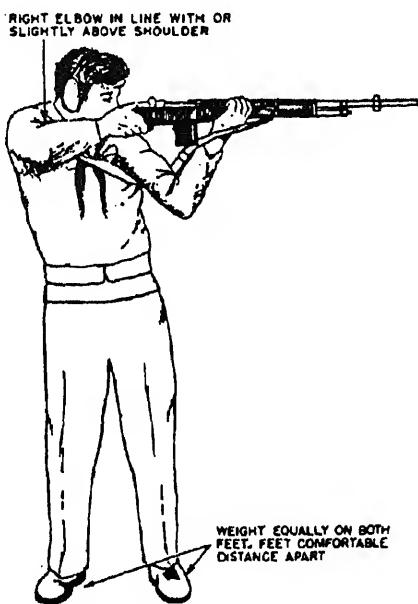


Figure 18-14.—Standing position.

positions. Moreover, it is difficult to hold the sights in correct alignment for more than a few seconds at a time. Stand with equal weight on both feet, which are spread apart a comfortable distance for good balance. As figure

18-14 shows, the right elbow is in line with or slightly above the shoulder. The body is erect at all times.

THE M16A1 RIFLE

The M16A1 rifle is a lightweight, gas-operated, magazine-fed, air-cooled, shoulder- or hip-fired weapon with a selector lever to select either automatic or semiautomatic fire (fig. 18-15). It is chambered for a 5.56-mm (about .22-caliber) cartridge. The caliber may seem small, but the bullet has a muzzle velocity of over 3,000 feet per second and a muzzle energy of about 1,300 foot-pounds. The firing rates are semiautomatic—45 to 65 rounds per minute; automatic—150 to 200 rounds per minute; sustained rate—12 to 15 rounds per minute. The maximum effective range is 460 meters (about 500 yards). The rifle is designed to accommodate the M302 40-mm grenade launcher and the M7 bayonet knife.

The M16A1 rifle is unique in that both sights are adjustable. The front sight is adjusted for range; the rear sight is adjusted for deflection (windage). One click on either sight represents a change in the impact point of approximately 3 centimeters per 100 meters of range.

The magazine has a capacity of 20 rounds, and it may be loaded with any amount up to that capacity.

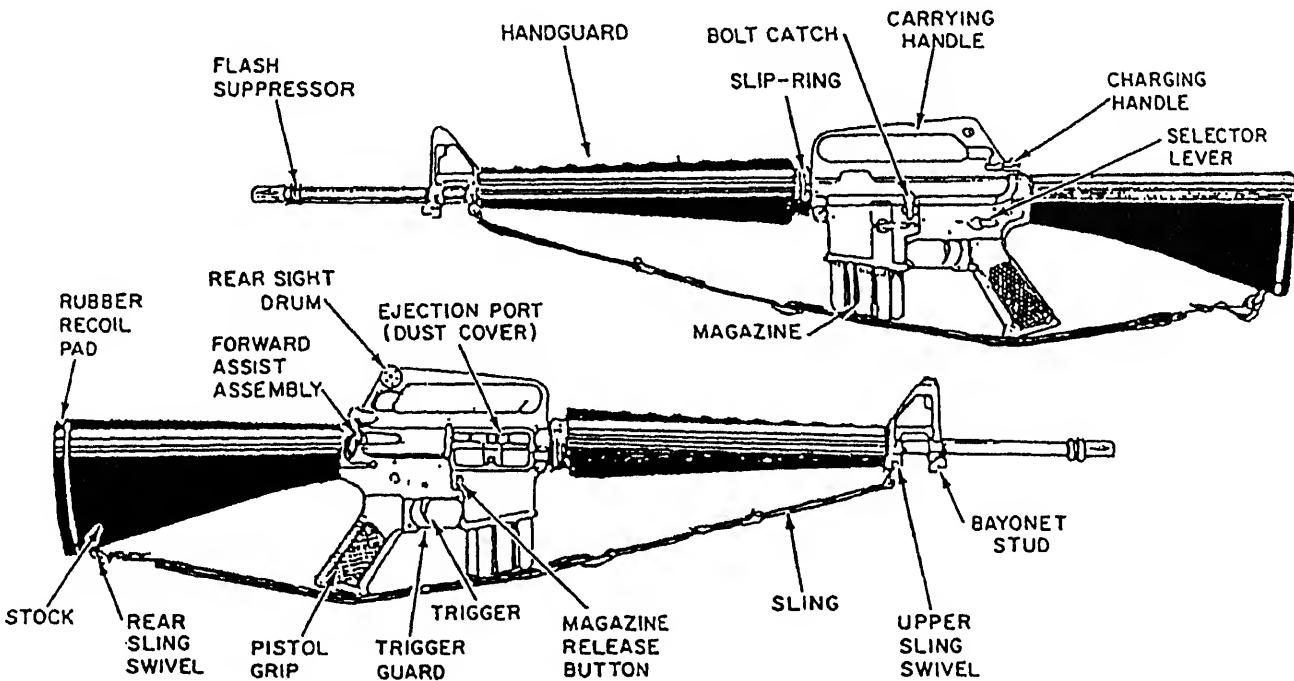


Figure 18-15.—Rifle, 5.56-mm M16A1.

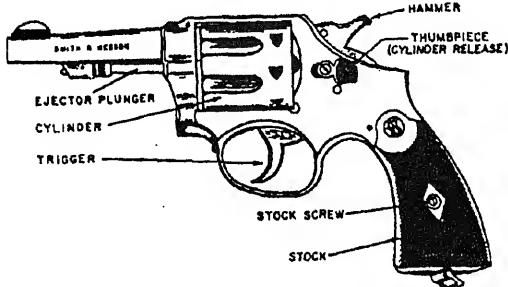


Figure 18-16.—Revolver, S & W, .38-caliber special.

To unload the rifle and make it safe, place the selector lever on SAFE; press the magazine release button and remove the magazine. Next pull the charging handle to the rear and inspect the chamber to ensure it is clear. Lock the bolt carrier to the rear by depressing the lower portion of the bolt catch; then return the charging handle forward.

The rifle is clear (and therefore safe) only when no round is in the chamber, the magazine is out, the bolt carrier is to the rear, and the selector lever is on the SAFE setting.

To load the rifle, cock the rifle by pulling back on the charging handle and depressing the bolt catch; place the selector lever on SAFE. Insert a loaded magazine into the magazine feedway and push upward until the magazine catch engages. Then rap the bottom of the magazine sharply to ensure positive retention and depress the bolt catch, allowing the bolt to close, chambering a cartridge. If the bolt fails to close fully, strike the forward assist with the heel of the right hand. To fire, turn the selector lever from its SAFE position to either SEMI or AUTO.

The preceding information is only a brief introduction to the M16A1 rifle. If you are required to use this rifle in the course of your assigned duties, ensure that you are thoroughly familiar with its operation, use, and maintenance. Information pertaining to the M16A1 rifle is contained in Army technical and field manuals, which should be available in your ship or station armory.

REVOLVER, .38-CALIBER

The .38-caliber revolver is a cylinder-loading, single- or double-action, manually-operated hand weapon. It is manufactured for Navy use by Colt and by Smith and Wesson (S & W), with the S & W being the most common. Several barrel lengths and weights are available. Although only the S & W 4-inch barrel

Military and Police Special (fig. 18-16) will be discussed here, all S & W models are operationally the same.

Although the revolver is designated as a .38-caliber weapon, like most so-called .38s it actually has a bore diameter of 0.357 inches. Other essential features are as follows:

Length of barrel	4 in. (10.2 cm)
Overall length of revolver	9 1/2 in. (24.1 cm)
Weight of revolver	29 oz (822 g)
Muzzle velocity	870 fps (265 m/s)
Maximum range	1,600 yd (1463 m)
Maximum effective range	50 yd (46 m)

Operation of the Revolver

For the purpose of this discussion, operation of the revolver is limited to loading, firing, and unloading. To load the revolver, swing the cylinder by pushing forward on the thumb latch and applying a little pressure on the right side of the cylinder. However, the thumb latch will not release the cylinder if the hammer is in the cocked position.

NOTE: The cylinder should never be flipped out sharply because of the likelihood of throwing the cylinder out of timing.

Insert a round in each of the six chambers in the cylinder and swing the cylinder back into position; the weapon is then loaded and ready to be fired.

In firing single action, the hammer is drawn back to the full-cocked position with the thumb. During the manual cocking action, the cylinder is rotated by the hammer and locked in the firing position by the cylinder stop. The hammer is held in the cocked position by the trigger and its associated linkage. The weapon is fired by aiming the weapon at a target and applying a steadily increasing pressure on the trigger until the hammer is released.

Double-action firing requires only that the trigger be pulled. Cylinder rotation and hammer cocking is accomplished through mechanical linkage by the trigger. Since double-action firing requires more trigger pressure, single action should be used when greater accuracy is desired.

Cartridges or empty rounds are ejected by swinging the cylinder out to the left and pushing the extractor plunger toward the rear of the cylinder. If undue pressure

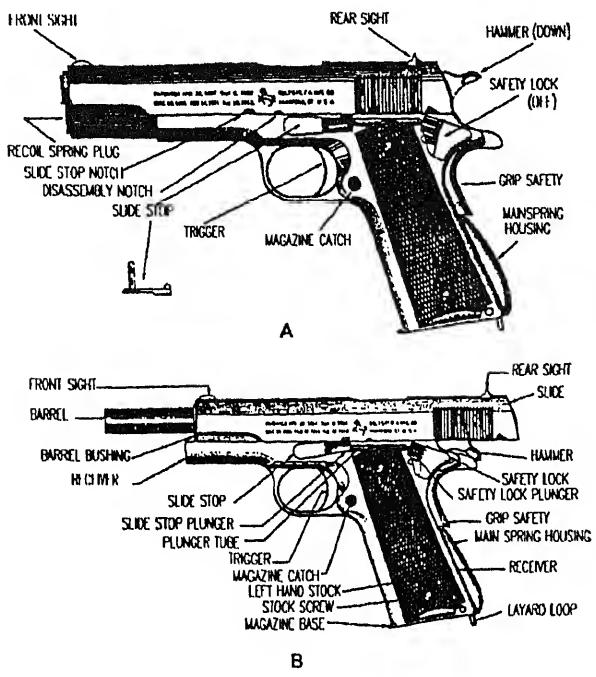


Figure 18-17.—Semiautomatic pistol (SAP), .45-caliber, M1911A1.

is required to eject the cases, it is an indication of dirty, rusty, or worn chambers.

Safeties

The .38 revolver has no safety devices. Careful observation of the operation of the revolver will show the effects of two safety features: the hammer block and the rebound slide. The hammer block prevents the hammer from going far enough forward to strike the primer when both the hammer and trigger are in the forward or uncocked position. Thus, if the revolver were dropped or otherwise struck on the hammer, the round would not be fired. The rebound slide works in conjunction with the hammer heel to prevent the hammer from traveling far enough to strike the primer of the round to be fired should the hammer slip from the thumb while being manually cocked.

PISTOL, .45-CALIBER, M1911A1

During the uprising of the Moro tribes in the Philippines during the early part of the 20th century, it was found that the fanatic tribesmen often were not stopped when hit by bullets from the .38-caliber sidearms then in use by American troops. This lack of stopping power was one of the factors which led to the

adoption of the .45-caliber automatic pistol as the official United States sidearm in 1911.

The pistol was designed and patented by John M. Browning, who was probably the world's greatest inventor of automatic weapons. The original model 1911 differs from the current model 1911A1 only in minor detail, and the two operate exactly alike.

.45-Caliber Pistol Characteristics

The standard sidearm used by the Navy is the .45-caliber automatic pistol, M1911A1 (fig. 18-17). Although called an automatic pistol, its action actually is semiautomatic—a separate pull of the trigger is required for each shot fired.

The service pistol weighs about 3 pounds fully loaded. It has a barrel length of 5 inches and an overall length of 8 1/2 inches. Its muzzle velocity is low (830 fps), but it has great stopping power. The maximum range is about 1,600 yards, but the effective range is about 50 yards.

The magazine holds seven rounds; but if the full seven rounds are kept loaded too long, the magazine spring becomes weakened. Since in this condition the spring cannot push the last round or two into the loading position, the gun may jam. Standard practice, therefore, is to load only five rounds into the magazine.

You may hear that you can carry a round in the chamber and seven rounds in the magazine. This capacity is true of some pistols, but it is an unsafe practice. Do not attempt it, and discourage others from doing it.

Safety Features of the Pistol

The design of the M1911A1 pistol incorporates the following safety features:

1. The firing pin is held in the slide with sufficient spring tension to prevent its touching the cartridge primer except on receiving the full blow of the hammer.
2. The disconnector prevents the release of the hammer unless the slide and barrel are in the forward position and fully interlocked. This device also prevents more than one shot from firing after each squeeze of the trigger.
3. The safety grip locks the trigger unless the handle is grasped firmly and the grip safety is pressed in.

4. The safety lock, when engaged, locks the closed slide and cocked hammer securely in position.
5. The half-cock notch of the hammer prevents the weapon from firing if the hammer should slip forward while hand-cocking to the full-cock position. If the hammer slips, it should fall only to the half-cock position. At the half-cocked position, the trigger is locked in the forward position. (Even though a correctly operating pistol will not fire with the hammer at half-cock, carrying the pistol in this manner is not recommended.)

Tests of Safety Devices

All safety devices should be tested frequently. Conduct the tests as follows with the pistol unloaded:

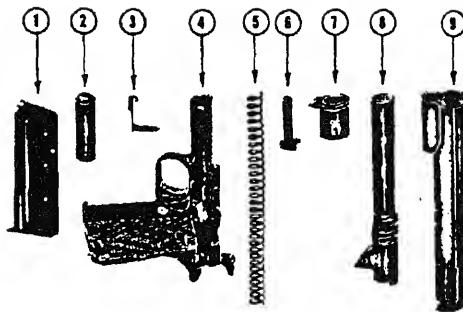
1. Safety lock. Cock the hammer and then press the safety lock upward into the SAFE position. Grasp the stock so that the grip safety is depressed, and squeeze the trigger three or four times. If the hammer falls, the safety lock is not safe and must be replaced.

Then, with the grip safety depressed and the safety lock in the SAFE position, squeeze the trigger several times. Release the trigger; and with the grip safety depressed, press the safety lock down into the FIRE position. If the hammer falls, the safety lock must be replaced. Replacement of this part does not always correct this situation; and if it does not, the pistol must be repaired by a qualified pistol armorer.

2. Half-cock notch. Draw back the hammer until the sear engages the half-cock notch, then squeeze the trigger. If the hammer falls, the hammer or sear must be replaced. Draw the hammer back nearly to full cock; then let it slip. It should fall only to half-cock.

3. Disconnector. The disconnector is not a positive safety since it cannot be controlled by the firer. It must be tested, however, because if the disconnector is faulty, the pistol could become fully automatic when fired.

Cock the hammer and push the slide 1/4 inch to the rear; hold the slide in that position and squeeze the trigger. Let the slide go forward, maintaining the pressure on the trigger. If the hammer falls, the disconnector is worn and must be replaced. Pull the slide all the way to the rear, squeeze the trigger, and release the slide. The hammer should not fall. Release the pressure on the trigger and squeeze it again. The hammer should then fall.



1. MAGAZINE ASSEMBLY	6. RECOIL SPRING GUIDE
2. RECOIL SPRING PLUG	7. BARREL BUSHING
3. SLIDE STOP	8. BARREL
4. RECEIVER GROUP	9. SLIDE GROUP
5. RECOIL SPRING	

Figure 18-18.—Parts of the pistol in order of general disassembly.

Field Stripping the Pistol

As stated earlier in this chapter, *field stripping* is the term applied to general disassembly of a weapon for ordinary care and cleaning. Remember, only Gunner's Mates or other qualified personnel should do a detailed disassembly. Refer to figures 18-17 and 18-18 for the identity and location of the parts named in the following field stripping procedures.

DISASSEMBLY.—Take the following steps to disassemble the pistol, placing all removed parts on a flat surface in the order of disassembly:

1. Press the magazine catch and remove the magazine.
2. Pull the slide to the rear, inspect the chamber to make sure it is empty, and then let the slide snap forward. (Do not snap the hammer.) Press the safety lock upward to the SAFE position.
3. Keep the pistol pointed away from your face. With the butt on a firm surface, press down on the recoil spring plug; using the other hand, turn the barrel bushing clockwise.
4. Allow the recoil spring to expand slowly. You must maintain control of the spring to prevent injury or loss of the plug. Remove the plug from the spring by turning it counterclockwise.
5. Press the safety lock to the FIRE position. Push the slide to the rear until the disassembly notch (closest to the butt) is aligned with the rear projection on the slide stop. Press on the slide

stop pin (which protrudes from the right side) with your right forefinger and withdraw the slide stop with your left hand. The slide stop holds the slide open when the last round in the magazine is fired. A projection on the magazine follower engages a step on the slide stop, pushing it up into the slide stop notch. To lock the slide open manually, pull it to the rear and push the slide stop up into its notch.

6. Turn the pistol upside down and draw the receiver to the rear, disengaging it from the slide.
7. Remove the recoil spring and its guide from the slide by pulling them to the rear. Remove the guide from the recoil spring with a twisting action.
8. Turn the barrel bushing counterclockwise to remove it from the slide.
9. Push the barrel link forward, and withdraw the barrel from the front end of the slide.

Field stripping the pistol is now completed. You should have the parts laid out in their order of disassembly, as shown in figure 18-18.

REASSEMBLY.—Essentially, reassembly is the reverse of disassembly. Frequently, however, getting the slide stop pin through the barrel link is difficult. To avoid this obstacle, hold the slide upside down while replacing the barrel, recoil spring, and recoil spring guide and fitting the receiver on the slide. Then turn the pistol upright, allowing the barrel link to hang down. Look through the hole in the receiver for the slide stop pin, and move the slide to the rear until the barrel link lines up. Insert the slide stop pin. Then position the slide so that the slide stop slips into place.

After the pistol is reassembled, check it by working the slide back and forth a couple of times; then squeeze the trigger.

Cleaning

Care is required to keep a pistol in good condition. It must be kept cleaned and lightly oiled to avoid jams. Care and cleaning include the ordinary care of the pistol to preserve its condition and appearance and to prevent rust or the accumulation of sand or dirt in the interior.

Damp air and sweaty hands are promoters of rust. Pistols should be cleaned and protected after every drill or handling. In tropical climates and on rainy days, it may be necessary to clean the pistol more often than once a day.

For daily preventive maintenance, rub the pistol with a lightly oiled rag; then wipe it clean with a dry, lint-free rag. Swab the bore with an oily flannel patch and then with a dry one. Clean out all crevices with a small, clean brush.

Immediately after cleaning, swab the bore with special preservative lubricating oil. Wipe over all metal parts with an oily rag.

After firing a pistol, the bore should be cleaned thoroughly no later than the evening of the day on which it is fired.

To clean the pistol after firing, it must first be field stripped. Clean all parts with an oily rag, dry the parts, and apply a light coat of oil. Saturate a cloth patch with bore cleaner (hot soapy water may be used if bore cleaner is unavailable), attach the patch to a cleaning rod, and run it back and forth through the bore several times. Replace the patch with a bore brush and run it back and forth through the bore several times; then run dry patches through the barrel until they come out clean and dry. Inspect the bore for cleanliness. If it is not free of all residue, repeat the cleaning process.

When the chamber and bore are clean, coat them with bore cleaner and leave overnight. Apply a light coat of oil to exterior surfaces. This cleaning process should be repeated for the next 3 days. If the bore and chamber are then clean, remove the bore cleaner and apply a light coat of special preservative lubricating oil. Reassemble the pistol and test it for correct assembly.

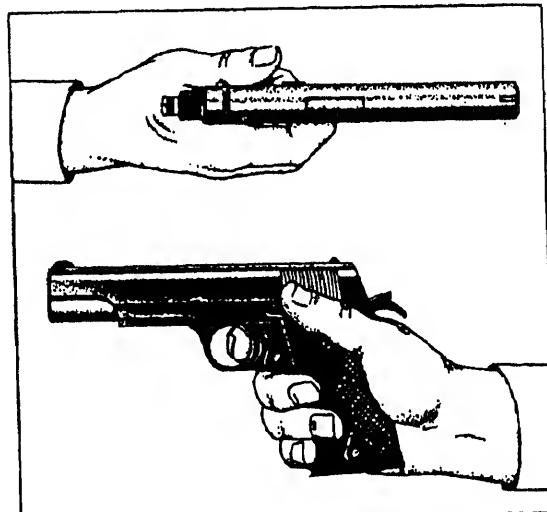


Figure 18-19.—Side and top views of correct grasp of pistol.

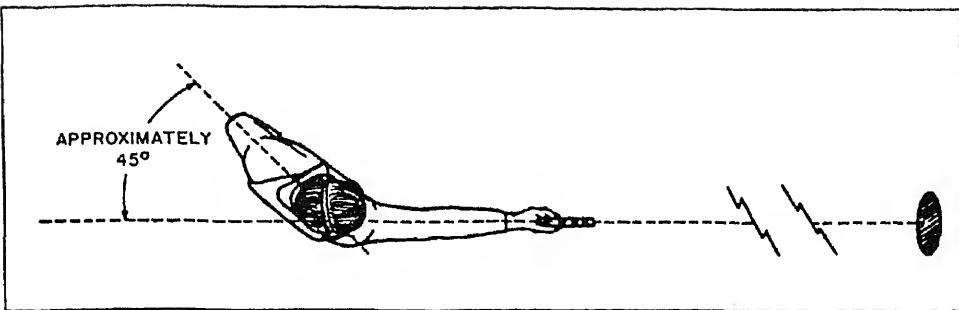


Figure 18-20.—Approximate position of body in relation to the line of sight.

Firing the Pistol

Safety and accuracy are the first two requirements of pistol shooting. This section touches briefly on the basic requirements for accurate pistol shooting on the firing range. Learn the approved methods at the beginning; otherwise, you will be practicing bad habits, which are difficult to correct.

RANGE FIRING.—In the interest of safety, range firing must be controlled. Therefore, before learning how to fire the pistol correctly, you need to know some simple precautions for firing on a range. The following precautions apply at all ranges, but each range usually will have its own additional rules:

1. Keep the slide open and the magazine removed when not on the firing line.
2. Load and unload only on the firing line and with the weapon's muzzle pointing toward the target.
3. Do not load until ordered to do so.
4. Do not fire until ordered to do so.
5. At the command CEASE FIRE, do so immediately and unload the pistol.
6. Before leaving the firing line, always inspect the pistol to ensure it is unloaded.
7. Never get in front of the firing line until directed by the range officer. Do not handle a weapon when anyone is forward of the firing line.

Loading.—Hold the pistol with the muzzle elevated, insert the magazine into the butt, and push it up into the receiver until it clicks into place. Pull the slide all the way to the rear and let it snap forward. Pulling back the slide cocks the hammer; as the slide moves forward, it carries the top round from the magazine into the chamber. The pistol can be fired when the safety lock is set to the FIRE position and the safety grip is pushed in.

Grip.—Use your left hand to assist in settling the pistol well back into the fork of your hand; that is, the grip safety should be forced down and back into the V formed between the thumb and forefinger of your right hand. Your hand should be as high on the butt as you can place it without squeezing your flesh between the tang of the hammer and the grip safety (fig. 18-19). The barrel should be aligned with your forearm so that when you extend the arm, the barrel will naturally point to the target. Keep the thumb parallel to or slightly higher than the forefinger. Grasp the pistol firmly, but not so hard that you cause the muscles to tremble. When extending the pistol, keep your elbow locked and your wrist firm.

Stance.—Stand in such a way that your body is at an angle of approximately 45 degrees from a line extending from your shoulder to the target (line of sight). (Refer to fig. 18-20.) Balance your weight equally on both legs and keep your feet 12 to 18 inches apart. Stand erect and hold your head up, but do not stand stiffly or try to pull in your abdomen. Your stance should be natural and comfortable so that you can point the pistol at the target easily and without strain. Your left hand can be placed wherever it seems most

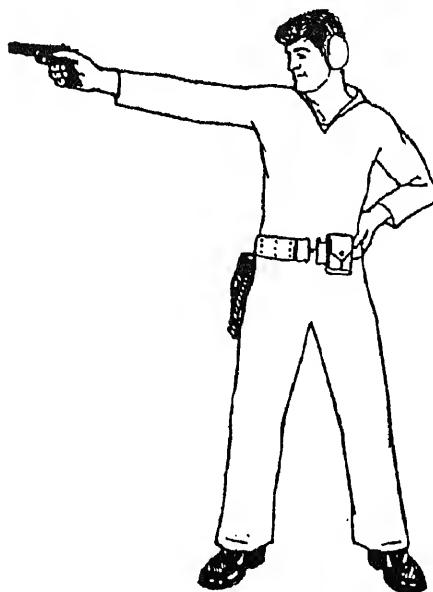


Figure 18-21.—Correct stance when firing the pistol.

natural to you—on your hip, in your pocket, or hanging at your side (fig. 18-21).

Sight Alignment.—One of the most essential pointers in shooting is sight alignment; that is, getting and keeping front and rear sights on the line of sight. If you stand as shown in figure 18-21 and line up the target, front and rear sights, wrist, elbow, shoulder, and eye, you should have little trouble with horizontal alignment. Make certain you do not bend your wrist to either side; to do so will throw the pistol across the line of sight, and your shot will be incorrect. If the distance to the target is great enough, a small error here might cause you to miss the target completely. The vertical alignment

must also be perfect. Correct vertical alignment of sights is shown in figure 18-22.

Correct pistol and target alignment is shown in view 1 of figure 18-23—front sight squarely centered in the notch of the rear sight and the top of both sights even. The bottom edge of the bull's-eye rests on the center of the front sight. The other views of figure 18-23 show the effects of various errors in alignment.

Breath Control.—When you are in position and the pistol sights are approximately aligned on the bull's-eye, take a normal breath. Exhale part of it and hold the rest by closing your throat, not by trying to hold your diaphragm or chest muscles still. In rapid fire you can fire all the shots in one breath; in timed fire you can fire the first three shots in one breath. After the third shot, you can take and hold a second breath on which to finish the shots.

Trigger Control.—Probably the most difficult part of shooting is squeezing the trigger properly. Pressure should be applied smoothly with the tip of the first joint of the forefinger (depending on the size of the hand) along a line parallel with the bore. First, take up the slack in the trigger; then take a breath, exhale part of it, and hold the rest as already described. Aim and commence squeezing. Squeeze only while the sights are on the target. But when the sights waiver off, don't release the pressure—hold what you have; when back on the target, continue squeezing. The secret is to fire the shot without knowing when the gun will discharge.

If you find that squeezing the trigger continuously throws your sights off in the same direction, you are applying sidewise pressure on the trigger. Do not try to compensate for sideways force by increasing or

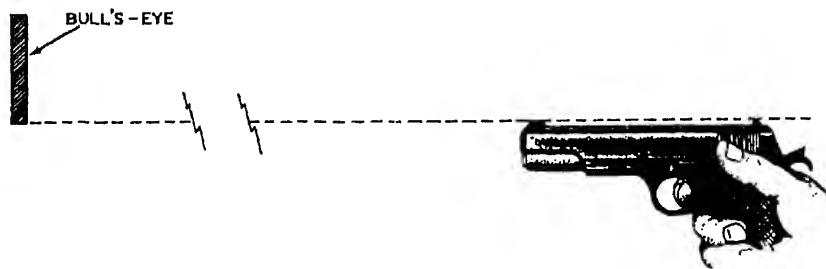


Figure 18-22.—Correct vertical alignment of sights.

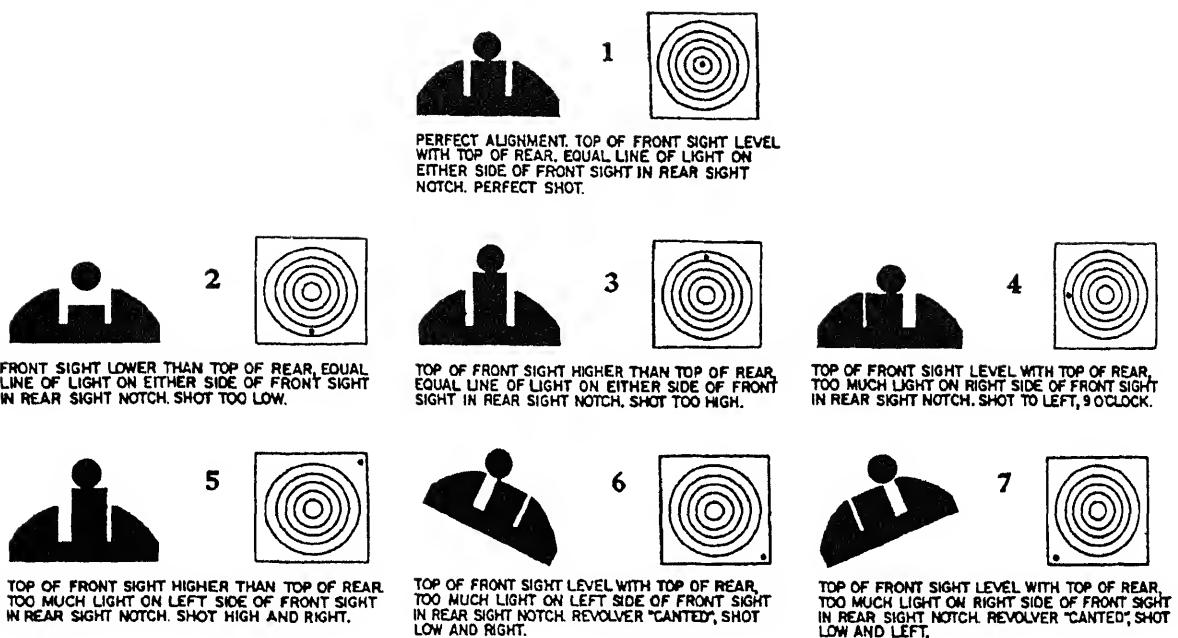


Figure 18-23.—Effect of correct and incorrect alignments of sights and targets.

decreasing the pressure of your thumb. Correct your trigger squeeze. It might be necessary to change the position of your finger on the trigger to squeeze correctly.

With the correct trigger squeeze, you should be able to call your shot; that is, say just where the sights were pointed when the shot was fired. If you can't call your shot, either you jerked the trigger or you flinched in anticipation of the explosion. Practice a firm, steady squeeze until you can call your shot every time.

Upon firing the last round from the magazine, the slide locks to the rear. Push in the magazine catch and withdraw the magazine from the receiver. If you are to continue firing, insert a loaded magazine and push down the slide stop with your left thumb, keeping the pistol pointed down range.

You may occasionally have the experience of the pistol failing to fire when the hammer falls. Such failure may be caused by a mechanical breakdown of the pistol or faulty ammunition. Keep the pistol pointed at the target and proceed as follows:

1. Manually cock the hammer without opening the chamber (the slide is kept full forward), and make another attempt to fire.
2. If the pistol still fails to fire, wait 10 seconds; then pull the slide rapidly to the rear to eject the cartridge, and release the slide to chamber a new round.
3. Attempt to fire again. If the pistol still fails to function, wait 10 seconds, unload the weapon, and make a detailed inspection to determine the cause of the misfire.

COMBAT FIRING.—Inexperienced personnel usually have difficulty making hits with handguns, particularly at long ranges. When firing on a range with nothing more at stake than your score, this deficiency is of little consequence. Under combat conditions, however, with your life at stake, or when you are faced with the necessity of preventing an act of sabotage or some other serious crime, good marksmanship is extremely important. Under such conditions, you will want every advantage. Hence it makes sense to use any available solid object to support your gun hand. With flat-topped objects, such as ready-service

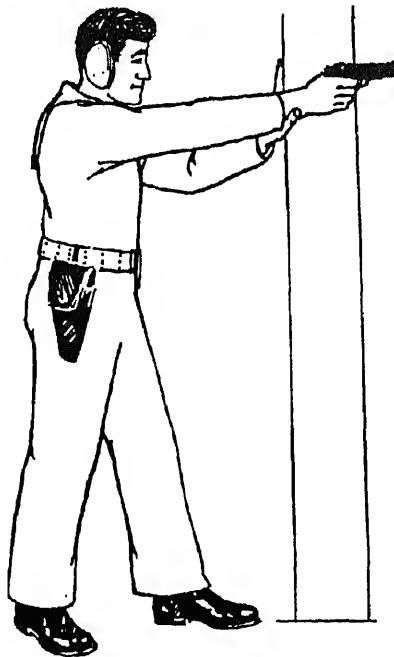


Figure 18-24.—Firing from behind a barricade.

lockers and lifeline stanchions, rest your gun hand firmly on the support, adjusting your stance as needed to aim. Figure 18-24 shows a method of using a bulkhead or barricade for support.

Place your left hand flat against the barricade, with your forefinger along the edge. Keep your left arm stiff, and lean on it slightly. Place your right wrist in the angle formed by the left thumb and forefinger, and curl the thumb against the right hand. Keep well behind the barricade, with only your right hand, left thumb, and your right temple and eye visible from the other side of the barricade.

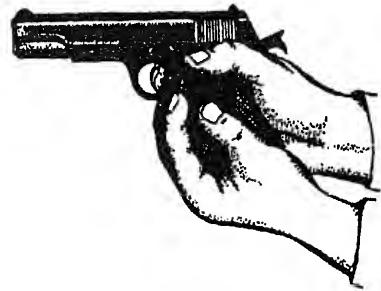


Figure 18-25.—Two-hand grip for pistol.

If no support is available, use the two-hand grip shown in figure 18-25. This grip supports the firing hand and steadies the weapon, thus enhancing accuracy.

Grasp the pistol in the usual manner. Then put the butt of the weapon firmly in the palm of the left hand. Close the fingers and thumb of the left hand over the right hand, as shown in figure 18-25. Grip firmly.

The two-hand grip can be used advantageously in any of the normal firing positions (figs. 18-26, 18-27, and 18-28). In all examples, these positions are similar to those used when firing a rifle—the greatest difference being that when firing the pistol, the shooter faces the target more squarely.

PISTOL, MODEL 92SB-F

In the spring of 1985, the armed forces selected a 9-mm pistol to replace the .45-caliber pistol. The pistol selected was the Beretta, Model 92SB-F 9-mm, which is a single- or double-action semiautomatic hand weapon. As soon as the pistol is fired, either in single or double action, the slide automatically comes back and cocks the hammer. To fire the pistol again, all you have

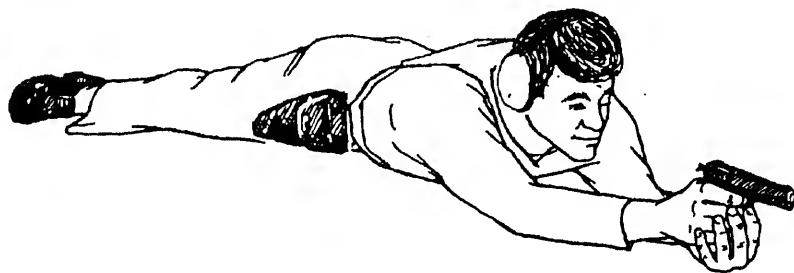


Figure 18-26.—Two-hand grip, prone position.



Figure 18-27.—Two-hand grip, kneeling position.



Figure 18-28.—Two-hand grip, crouching position.

to do is pull the trigger. Also, the pistol has an increased magazine capacity; it can hold 15 rounds in the magazine. Slots in the magazine help the user determine how many rounds are remaining.

The changeover from the .45-caliber pistol to the 9-mm pistol will take several years. The 9-mm pistol will eventually replace most of the .38-caliber revolvers also. There will be a need for .38s since criminal investigators, intelligence agents, and other people in similar jobs require a concealable side arm.

SHOTGUNS

Shotguns are being used more and more by the Navy in security guard work. With the requirement to protect the vital nuclear propulsion systems and nuclear weapons with more people, it is clear that the shotgun is the weapon of choice for this short-range work. The advantage of the shotgun over the pistol/revolver is that sight alignment is not so critical. Each trigger pull of a shotgun expels anywhere from nine to hundreds of projectiles (shot). These projectiles cover a wide area.

Normally, the ammunition issued for the shotgun will be 12 gauge, 00 buck.

Shotguns used by the Navy are military versions of civilian models. The Remington, Model 870 (M870), and the Mossberg, Model 500 (M500), are the Navy's standard issue riot type of shotguns. Only the M870 will be described here.

The M870 shotgun (fig. 18-29) is a manually operated, magazine-fed (tubular), pump-action shoulder weapon. The overall length is 39 inches; the barrel is 20 inches. The M870 will hold four rounds of 12 gauge, 2 3/4-inch ammunition in the magazine. It has a crossbolt safety. Make certain you load the M870 with the proper ammunition. Many people have been injured by a shotgun loaded with a smaller gauge shell. This smaller shell goes part way down the barrel and cannot be fired. The user thinks a misfire has occurred and chambers the proper size shell. Firing of the weapon causes the gun to explode because of the obstruction caused by the smaller shell. Serious injury or death could occur.

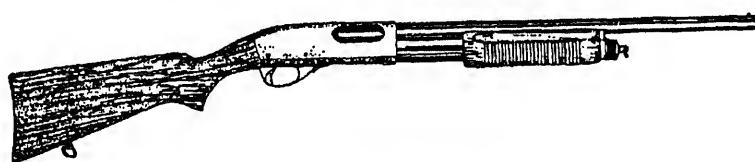


Figure 18-29.—Remington M870 shotgun.

SUMMARY

In this chapter we have discussed the various small arms used by the Navy. You may never have the occasion to use small arms; then again you may use them everyday in your routine aboard ship. It is imperative that when using small arms, you **ALWAYS** abide by all prescribed safety precautions. The use of safety equipment is also essential. Respect small arms, but don't be afraid of them. They can be your best source of personal defense in times of trouble if handled properly. All the small arms used by the U.S. Navy are manufactured to have a high degree of reliability if they are cared for and maintained properly. Proper maintenance could mean the difference between your

small arm working properly or jamming at critical moments.

Take advantage of every opportunity you may have of going to a rifle or pistol range. The more familiar you become with small arms, the better you will be able to handle them safely. The more you shoot, the better you will become.

REFERENCES

Gunner's Mate G 3 & 2, NAVEDTRA 10185-C1, Naval Education and Training Program Management Support Activity, Pensacola, Fla., 1986.

CHAPTER 19

SURVIVAL

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Explain how to use lifeboats.
2. Describe the survival gear associated with lifeboats.
3. Describe the reasons for caring for and using personal flotation devices.
4. Identify the methods and procedures for abandoning ship.
5. Identify the equipment required for desalting seawater.
6. Describe the minimum swimming qualifications.
7. Describe the techniques used for swimming through oil, flames, and debris.
8. Describe the procedures for using clothing and buoyant objects to stay afloat.
9. Describe the concepts of land and sea survival.
10. Describe the various methods of obtaining fresh water.
11. Describe the procedures for evading, resisting, and escaping while in enemy territory.

As stated in earlier chapters, being a professional seaman has its dangers. These dangers are not limited to just your job in the Navy. In times of conflict your ship or shore station may be in contact with an enemy force or ship. Regardless of your rate, rating, or duty station, you may at one time need to stay alive in the water until you can reach land or be rescued. You must have the knowledge required to live in the field with limited equipment (survival) and to avoid the enemy (evasion). If captured, you also have the responsibility to flee from the enemy (escape) if possible.

This chapter contains information on the principles and techniques of sea survival, evasion, land survival, and escape that have been used successfully worldwide. The information given here is by no means all-inclusive, but should serve as an aid if the need arises.

SURVIVAL AT SEA

Survival at sea will depend upon your knowledge, self-control, training, and equipment. The time to learn as much as possible about survival and rescue at sea is before you abandon ship—not after you find yourself in the water. The information for survival at sea is general in nature and applies to all Navy ratings.

This chapter tells you about some of the survival equipment you will find aboard ship. Some of the more

important techniques for survival at sea will also be explained.

ABANDONING SHIP

Having to abandon ship is never a pleasant experience. Your "home" is gone along with most of your possessions and possibly some of your shipmates. You do not know how long you must wait for rescue. With proper knowledge and training, however, these frightening aspects can be greatly reduced. Do not panic, and do not give up hope. Remember that the Navy knows you are missing and is searching for you. Remember, also, that thousands of persons have survived ships sinking in both wartime and peacetime.

If time permits, the crew will abandon the ship in a planned and orderly manner. In the prepare-to-abandon-ship stage, all personnel go topside and muster at their abandon ship stations, don life jackets, and rig lines and ladders over the side. Bearing and distance to the nearest land, sea and wind conditions, and water temperature are passed over the 1MC (ship's general announcing system). When the order to abandon ship is given, all boats are lowered and lifeboats are released. The crew members then go over the side and board them as quickly as possible.

Know Escape Routes

Many survivors have reported that their shipmates were lost because they were unable to get topside before the ship sank. In many of these instances, the compartments in which personnel were trapped were not cut off—the individuals only thought they were.

Once on board a particular ship, most sailors learn the easiest ways from their berthing compartments to their stations and automatically use these routes day after day. The habit of using the same hatches and ladders day after day becomes so strong a person finds it difficult to use other routes. This habit is especially true of persons whose stations are in the lower part of the ship. However, a hit from a torpedo or bomb or a collision with another ship may flood the compartments normally used or knock out a ladder. Often some measure to control flooding taken by the damage control party closes off the normal method of travel.

The only answer to this situation is to know your ship. Small ships do not present much of a problem because they have only a few routes you can follow. Large ships, however, are another matter. Aboard an aircraft carrier or cruiser, for instance, learning all the passageways, doors, and ladders takes a long time. During leisure time, take it upon yourself to learn escape routes from various below-deck sections to the weather decks. Ask the individuals who work in those sections the best way to get topside; then follow that route. The time to experiment is before an emergency occurs—not during one.

Going Over the Side

As in everything else, there is a right way and a wrong way to abandon ship. Whenever possible, go over the side fully clothed. Shoes and clothing may hinder you while swimming; but in lifeboats, a covering of any kind offers protection against the effects of sun and salt water. In a cold climate, wear a watch cap to keep your head warm. Take along a pair of gloves and extra clothes if you can. Even in tropical waters you may feel cool at night, because you can do little to keep warm.

Normally, you should leave from whichever side of the ship is lower in the water; but if the propellers are turning, leave from the bow. Leave by the windward side whenever possible. Leaving from the lee side might protect you from a stiff wind, but the same wind causes the ship to drift down on you, often faster than you can swim. Also, if oil is on the water, you can clear the slick sooner by swimming into the wind.

Never dive, and do not jump unless you have to. Use a ladder, cargo net, line, or fire hose. If you must jump, do so feet first, legs together, and body erect. (First, check the water so you will not land on debris or on other personnel.) Except when jumping into flames, be sure your life preserver is fastened securely, including the leg straps. If you are wearing a vest-type preserver, place one hand firmly on the opposite shoulder to keep the preserver from riding up sharply when you hit the water; in a long drop, the force of impact might hurt your chin or neck. Hold your nose with your other hand. If you are wearing an inflatable preserver, inflate it after you have entered the water.

In the Water

Once you are in the water, your immediate concern is to clear the ship as quickly as possible. Before you rest, you should try to be from 150 to 200 yards away from the ship. When the ship goes down, it may create a strong whirlpool effect, which might draw you down with the ship if you are too close. Another advantage of distance is that you will be safer if an explosion occurs.

After you are safely away from the ship, conserve your energy. Do not splash about or shout unnecessarily. If any danger of underwater explosions exists, float or swim on your back with your head and chest as far out of the water as possible. Help your shipmates all you can, and try to stay in groups (fig. 19-1). Get on a lifeboat, of course, as soon as you can. In the meantime, grab anything floatable that comes by, or just relax in the water. Above all, REMAIN CALM.

SWIMMING AND FLOATING.—To meet current minimum requirements for a swimmer third class, you must enter the water feet first from a height of 5 feet, remain afloat for 5 minutes, and swim 50 yards. Meeting only these requirements, however, will be of little help to you if you must swim to a lifeboat 1/2 mile away.

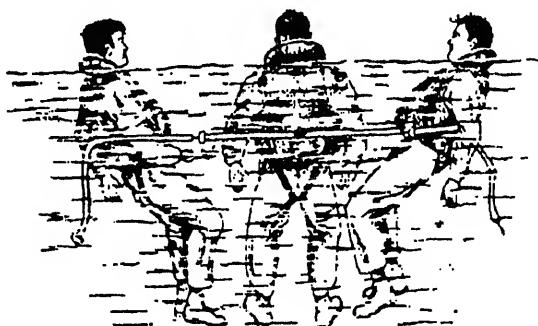
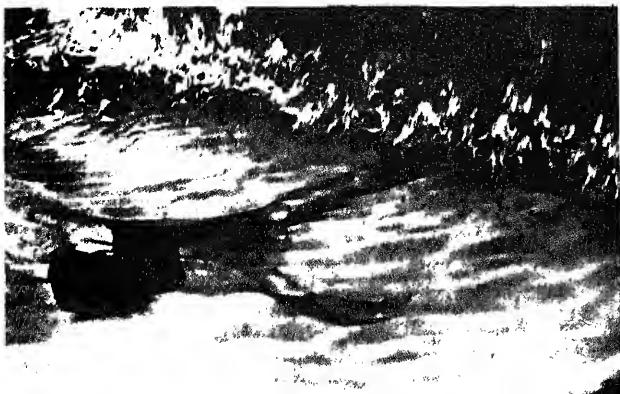


Figure 19-1.—Joining preservers.



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Figure 19-2.—Swimming through flames.

If you qualify for swimmer second class, you have a better chance for survival. You must jump from a height of 10 feet and remain afloat for 10 minutes. You must swim 100 yards, using the three survival strokes (breast stroke, side stroke, and elementary back stroke) for at least 25 yards each.

The individual who has the best chance for survival is one who is qualified for swimmer first class, because the requirements most closely simulate an abandon ship situation. Basically, you must swim 220 yards, entering the water feet first and immediately swimming underwater for 25 yards. You may surface for air twice at 25-feet intervals. You must remove your trousers or slacks in the water and inflate them; you must also tow another person 25 yards.

You may use several methods of towing a person, such as the cross-chest-carry and the extended-reach methods recommended for towing struggling victims. The easiest method is to grab the victim's hair from behind and use a side stroke for towing; this method is recommended mostly for towing unconscious victims.

After abandoning ship, you may have to swim fast, slow, on the water, or under the water. You may have to put on or take off clothing; carry or search for objects; float for hours; or in shark-infested waters, lie still and

keep your limbs from dangling. There is no end to what you might have to do; prepare by practicing all the strokes you know.

Almost all of the Navy's shore installations have swimming facilities available for your use. Practice the various strokes at every opportunity. Extend the swimming range over which you can swim until you feel confident you can stay afloat and swim to a distant lifeboat or floating object.

SWIMMING THROUGH FLAMES.—Flame-covered water might be a terrifying sight, but you need not fear jumping into the flames. If you follow the procedures given here, you will clear the burning area safely.

Do not wear an inherently buoyant life preserver. (If you have one on, discard it.) If you are wearing a CO₂ preserver, keep it on, but uninflated. Discard your shoes because they will hinder your underwater swimming.

When you jump from the ship, take a very deep breath; cover your nose and mouth with one hand and your eyes with the other hand. Swim as far underwater as possible. When you must come up for another breath, extend your arms above your head; then pull them back in a wide sweep to force the upper part of your body above the surface. At that time, make wide sweeping movements with your hands and arms across the surface to splash the water and drive away the flames. As you pop above the surface, try to turn your back to the wind before you take a breath. Submerge again feet first, repeating the procedure until clear of the burning oil (fig. 19-2).

When going into oil that is not burning, save your preserver to use as a raft. Keep your face above the surface as much as possible. That helps to prevent oil from getting into your eyes and mouth.

AIDS FOR STAYING AFLOAT.—If you are in the water without a life jacket, do not become frightened—you can stay afloat. Several articles of clothing, including the white hat, will provide some flotation when used properly. The most useful article is your trousers or slacks, which you can inflate to serve as water wings.

To remove your trousers, lean forward in the water and slowly slip them down over your hips and legs. Do not let go of them for they may sink.

To inflate your trousers, first zip them; float them on the surface with the fly or front turned down. Tie a knot in each leg as close to the cuff as possible. Work the garment around on the surface until the legs are over

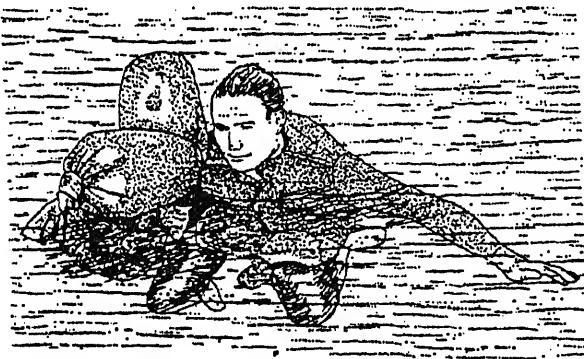


Figure 19-3.—Using inflated trousers/slacks for support.

your shoulders and the knots are behind you, leaving the crotch in front of you. Grasp the waist of the trousers with one hand on each side; then extend your arms straight upward, kicking your feet to get your body as high out of the water as you can. When this position is reached, pull the trousers downward smartly on the surface, trapping a pocket of air in each leg. Then gather the waist under the water and hold in one hand. Figure 19-3 shows the results of this procedure. Keep the trousers legs wet by splashing water on them to reduce the loss of the trapped air.

You may use mattress covers, sea bags, laundry bags, and pillowcases in a similar manner. A large amount of debris usually is present—pieces of wood,



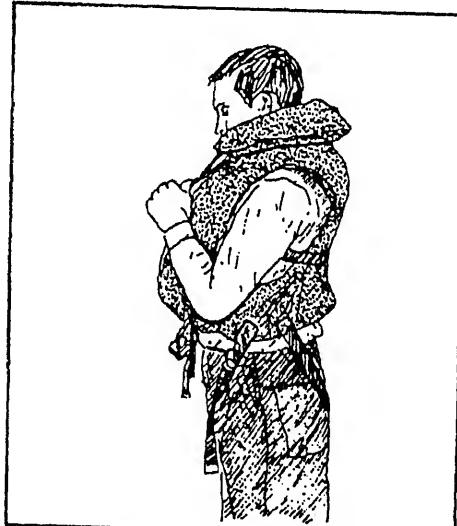
A. LIFE PRESERVER DONNED JACKET TIED AT UPPER CHEST AND WAIST; WAIST TIE PULLED SNUG. SNAP HOOK BEING FASTENED INTO RING ON CHEST STRAP.



B. LEG STRAPS BEING REMOVED FROM BACK OF PRESERVER; WILL BE LED BETWEEN LEGS.



C. BOTH STRAPS PULLED BETWEEN LEGS, ONE FASTENED TO D RING ON LEFT SIDE, OTHER BEING FASTENED.



D. TYING THE COLLAR.

Figure 19-4.—Adjusting the vest-type life preserver.

empty shell boxes, powder cans, and so on; use such debris to stay afloat.

SURVIVAL EQUIPMENT

The two basic categories of flotation devices are life preservers and lifeboats. Each is vital to the survival of a ship's crew if the ship sinks. Other than the lifeboat, the life preserver (commonly called a life jacket) is the most important piece of abandon ship equipment.

The inherently buoyant (vest-type) preserver is so designed that, if adjusted properly, it will support you and keep your head out of the water even if you are unconscious. With a life preserver on, you can stay afloat for many days. Without a life preserver, you have little chance of surviving in the water for any great length of time.

The lifeboat presents the greatest chance of survival because it contains food and water, provides shelter from the elements, and contains equipment that greatly enhance your chances for survival.

During wartime, each person aboard ship is issued a life preserver. Wear it or keep it handy at all times. During peacetime, life preservers are stowed in ready-use lockers. Know where your preserver is stowed, how to put it on, and how to release and inflate the lifeboat.

Life Preservers

The Navy uses two types of life preservers: the INHERENTLY BUOYANT and the INFLATABLE. The inherently buoyant type has several designs. The vest type is the most widely used.

INHERENTLY BUOYANT TYPE.—The inherently buoyant vest type of life preserver shown in figure 19-4 uses fibrous glass pads to provide buoyancy. The pads are sealed in plastic waterproof bags placed in an outer cover or envelope. The preserver has cloth tapes to pull tight for a close fit. Leg straps prevent it from riding up while you are in the water. A body strap across the chest helps give a snug fit and provides a hold for lifting you out of the water. You can also use the strap to attach yourself to a life raft or to other persons in the water.

Put on the vest type of life preserver over your clothing. Tie the upper tapes to make it fit comfortably, and pull the tape at the waist fairly tight to keep the preserver from sliding up in the water. Then, adjust the chest strap and fasten the snap hook into the ring. Pull the leg straps as tight as possible without producing

discomfort. Tie the collar tapes tightly under the chin. The collar holds the head upright and helps prevent an unconscious person from drowning.

INFLATABLE TYPE.—The inflatable life preserver shown in figure 19-5 is made of lightweight, neoprene-coated nylon. You carry it in a pouch container held around your waist on a web belt. You blow up the inflatable preserver either by mouth or by using a carbon dioxide (CO₂) cylinder. It is equipped with a lifting harness, a waist belt, and a wooden toggle and a line for attaching oneself to a life raft or another survivor.

To use the preserver, pull the pouch around to the front, remove the preserver from its pouch, slip it over your head, and inflate it. To inflate the preserver, grasp the lanyard attached to the CO₂ cylinder and jerk downward. For oral inflation or if you need more buoyancy, turn down the knurled ring at the base of the oral inflation tube as far as it will go, depress the mouthpiece by force of the mouth, and blow into the tube as if you were blowing up a balloon. Release the mouthpiece when inhaling to prevent escape of the air. When the preserver is inflated, lock the oral valve by turning the knurled ring against the mouthpiece. Always wait until you have entered the water to inflate this type of life preserver.

The automatically inflatable work-type life preserver provides you maximum lifesaving protection. At the same time it offers little interference when you are working over the side, performing underway replenishment (unrep) duties, working as part of a boat crew, or manning selected battle stations. The automatic function will inflate the life preserver if you go into the water in an unconscious or helpless state. You may inflate the autoinflatable preserver orally, by the autofunction device, or by using a combination of the two. The autofunction device uses a water-degradable paper to release a spring that causes two CO₂ cylinders to be punctured and inflate the preserver.

PIN-ON LIGHTS.—Small watertight flashlights or chemically activated light sticks have been developed for use with life preservers to help rescuers see a person in the water more easily at night. The flashlight consists of a one-cell battery case to which is permanently attached a heavy metal safety pin for fastening the light to the preserver. The lens is dome shaped, providing 360-degree visibility from above. The chemically activated light sticks are activated by a chemical reaction in the stick.

Wear these lights whenever you use the life preserver. Check the battery at least once a week to see

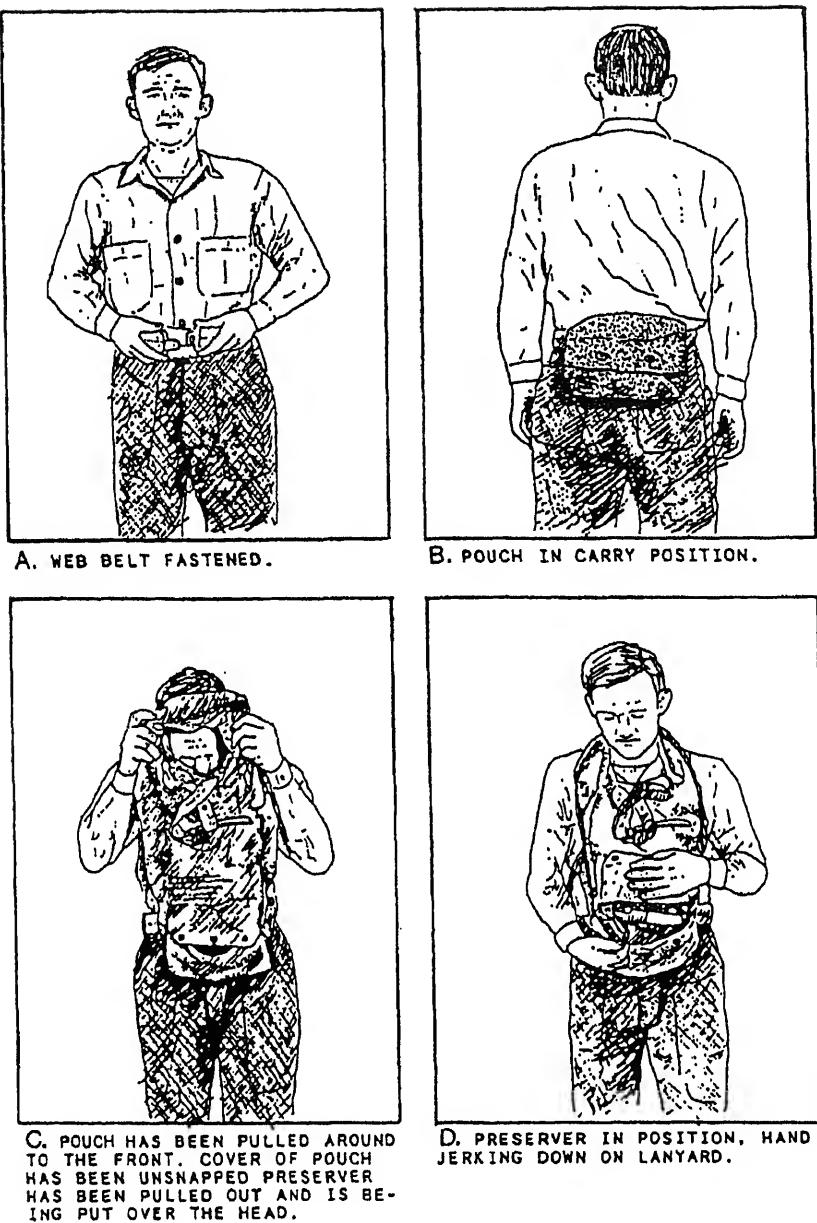


Figure 19-5.--Inflatable life preserver.

that it works. Replace the battery at least every 6 months. Check the light stick each time you use the preserver, and replace it if you see any indication that the stick has been damaged or used. Remember the following tips when using these lights:

1. On the vest-type preserver, pin the light near the top of your shoulder so that the lens points upward.
2. When pinning the light on the vest-type preserver, take care not to pierce the waterproof covering in which the fibrous glass pads are wrapped.

3. Attach the light to the inflatable preserver to the tab provided for this purpose.

Some ships may issue strobe lights. These lights have a brighter intensity. The battery screws in and is water resistant.

Some commands are issuing chemical lights as life vest pin-on lights. The light used for a pin-on light has a green color when the chemical is activated. You activate the chemical light by squeezing the lens, which crushes an inner vial; that allows the chemicals to mix, causing the wand to glow. Dispose of these lights after one use.

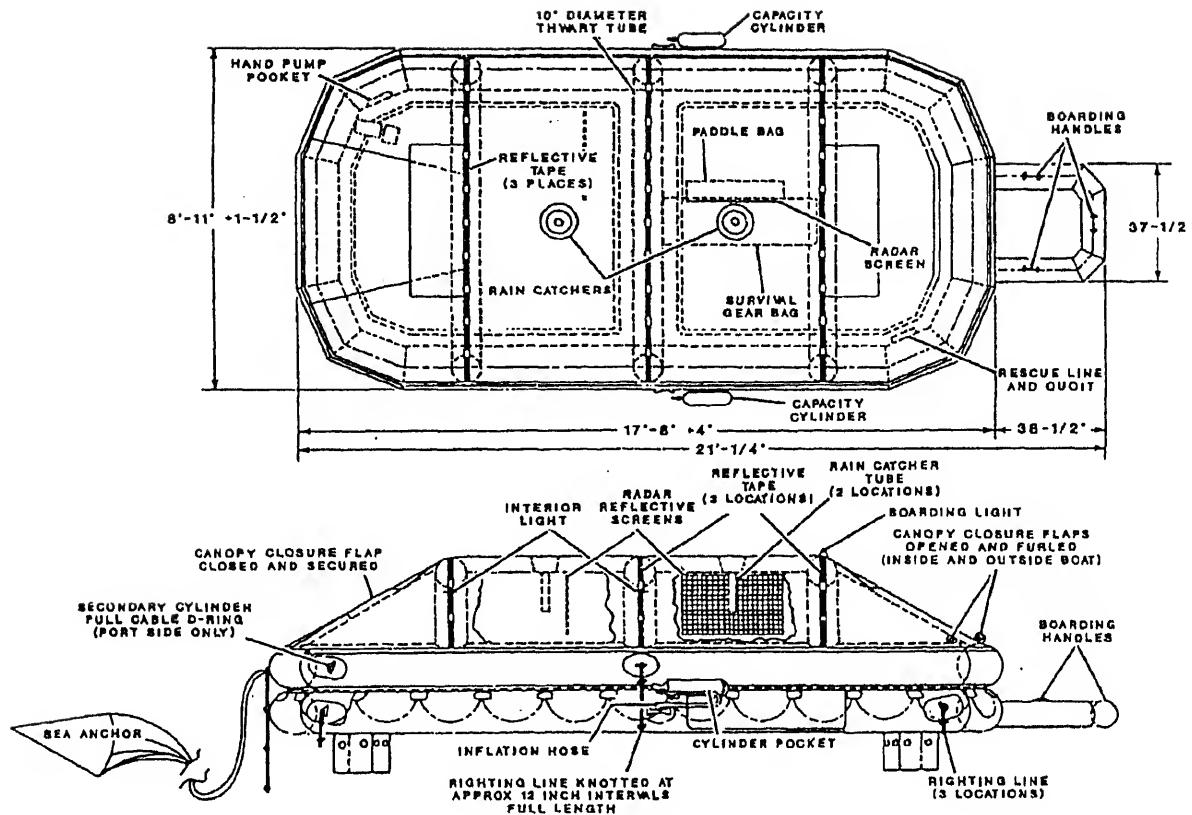


Figure 19-6.—Inflatable lifeboat.

CARE AND STOWAGE OF PRESERVERS.—

You may launder the outer covers of inherently buoyant life preservers after first removing the fibrous glass pads. (Do not launder the pads.) Clean the inflatable types with a mild soap solution only.

Do not stow life preservers in the vicinity of oil, paint, grease, heat, moisture, or dirt, all of which can cause deterioration of the nylon material. Keep the preservers clear of sharp edges, which increase wear and tear, and away from steam lines and radiators. If preservers become wet while in use, dry them thoroughly before stowing them to prevent mildew. Do not tamper with your life preserver or handle it roughly. Do not sit or lie on it. To do so will compress and mat the filler pads and reduce the buoyancy of the preserver.

If you are issued the inflatable type of preserver, inspect it every time you put it on and at least once every month if it is in your custody. Inflate it by mouth to locate possible leaks in the air chamber or inflation valve. Make sure the piercing pin of the CO₂ valve is in good working order and the cylinder itself has not been punctured. Weigh the cylinder on a gram scale to make sure it is fully charged.

You should be able to put the life preserver on and adjust it in the dark. Treat it like a friend; someday it might turn out to be the best one you have!

LIFEBOATS

A warship does not have room to carry all the powerboats needed to transport the entire crew. At sea, a powerboat is usually difficult and sometimes impossible to launch rapidly. For these reasons, the Navy has spent time and expense developing efficient lifeboats other than powerboats.

The Navy uses several types of inflatable lifeboats. Each boat has sufficient equipment to support the number of survivors for which the boat was designed to carry. Each boat's gear includes a canopy, a sea anchor, lifeline, boarding line, a rain-catcher tube, air hand pumps, paddles, sponges, a boat repair kit for patching leaks, and a floatable knife. The inflatable lifeboat also carries desalter kits for turning seawater into freshwater. The survival kits contain food rations, sea marker dye, a flashlight, batteries, a signal mirror, a whistle, a first-aid kit, a distress signal kit, and containers of freshwater. The survival kits in the large boats are designed to sustain 15 to 20 people for 5 days on regular rations. Figure 19-6 shows the inflatable lifeboat.

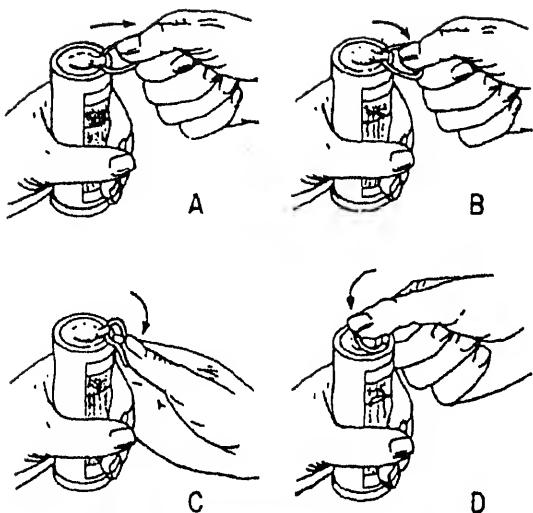


Figure 19-7.—Igniting the MK 13 distress signal.

SIGNAL EQUIPMENT

The proper use of the signaling equipment provided in the lifeboat may mean the difference between your being rescued or remaining adrift. The opportunity to attract the attention of friendly aircraft or surface vessels may pass quickly; you must be prepared at all times to use the signaling equipment.

Signal Mirror

The mirror is an effective signaling device when the sun is shining. Rough water will make focusing the mirror on a rescue ship or aircraft difficult. The survival kit contains instructions for using the mirror. If the mirror is lost or is otherwise unusable, you can make another one from a piece of metal that is shiny.

To signal with the mirror, first punch a cross hole in its center. Hold the mirror about 3 inches in front of your face and sight through the cross at the ship or aircraft. The spot of light shining through the hole onto your face will be seen in the cross hole. While keeping a sight on the ship or aircraft, adjust the mirror until the spot of light on your face disappears in the hole. The bright spot, seen through the sight, will then be aimed directly at the search ship or aircraft.

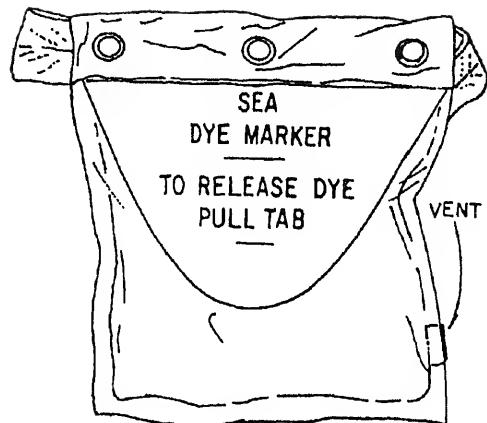


Figure 19-8.—Dye marker.

Distress Signal Kit

The signal kit contains 12 (Mk 13 Mod 0) distress signals for day and night use and for providing wind drift information to helicopters rescuing personnel. One end of the signal tube produces an orange smoke for day use; the other end produces a red flare for night use. You can identify the night flare end in the dark by a series of small beadlike projections embossed around it. Each signal will burn for approximately 18 seconds.

To use the signal, select the proper flare, tear off the sealing tape from around the end of the cylinder, and remove the plastic cap to expose a metal pull ring (fig. 19-7). (Only the night end of the flare has a metal ring; the smoke [day] end does not have the ring.) To ignite the Mk 13 signal, grasp the pull ring and flip it over the rim of the signal case, as shown in view A. Press down the overhanging ring with your thumb until the seal snaps, as shown in view B. If the seal refuses to snap, continue pressing on the ring so that it bends over the rim and against the signal body, as shown in view C. Flip the ring back to the top of the signal and press down, as shown in view D, using the bent pull ring as a lever.

After the seal breaks, point the signal away from your face and body and give a sharp yank on the pull ring. Hold the signal at an angle of approximately 45° from the horizontal position with your arm fully extended. The contents are hot, so take care not to drop any of the contents on yourself or the lifeboat.

After using one end of the signal, cool it by dipping it in water; then save it until you use the other end. Make sure the distress signal is cool before storing it.

The dye marker shown in figure 19-8 produces a brilliant yellowish-green fluorescence when it is submerged in water. Under good conditions, the dye will be a good target for only about 1 hour, but it will retain some of its color for up to 4 hours. From an altitude of 3,000 feet, a rescue plane may see the dye marker as far away as 10 miles. The range decreases as the dye spreads or is diluted by the water.

EQUIPMENT FOR OBTAINING WATER

Never discard any article that will hold water. When it rains, every container that can possibly hold water will be invaluable. A rain-catcher tube attached to the lifeboat canopy will help you fill the containers. Even in a light rain, some water will drain from the canopy down through the tube. After filling all available containers, stow them carefully so that you won't lose any water. Cover all open containers to slow down evaporation; use those you don't have covers for first. During the rain, drink all you can hold.

In polar areas, you can obtain freshwater from old sea ice. Old sea ice is a bluish color, splinters easily, and is nearly free from salt. New ice is milky in color, hard, and salty. You may also obtain freshwater from icebergs, but use caution. As its underwater portion melts, an iceberg gets top heavy and can capsize without warning.

CARE AND USE OF SURVIVAL AND SIGNAL EQUIPMENT

When not using survival and signal equipment, stow it in containers for safekeeping and protection against the elements. Some of the items, such as the mirror and whistle, have a lanyard for wearing around the neck. Keep all items as dry as possible. After using any item, replace it in its container. Protect flashlights and knives from salt spray; otherwise, they will soon become corroded. About the only items that should be left out continuously are the sponges.

SURVIVAL STEPS

Most of the following survival information applies to persons in boats, but some of this information applies to persons in the water. In trying to survive at sea, you will face thirst, hunger, and exposure whether you are in a lifeboat or in the water. You can endure these conditions, however, if you take the proper steps.

Thirst

The one absolutely essential requirement for survival is drinking water. Without it, death will most likely occur in 8 to 12 days. Normally, you need about 2 quarts of water a day; but because of inactivity and lack of food, you can survive on as little as 6 ounces a day in a lifeboat.

Water is lost from the body by the evaporation of perspiration and through the digestive process. Water loss can be reduced by keeping your clothes wet during the day (weather permitting, of course), but dry them before sundown. Wear the least amount of clothes possible, depending upon your need for protection from the elements. If water is scarce, eat sparingly. NEVER drink seawater or urine. To do so would only aggravate your thirst and increase body water loss with a subsequent speedup in dehydration.

Do not drink all your daily water ration at one time. It is better to drink small amounts three or four times daily.

Hunger

The food rations supplied with each lifeboat are specially designed to maintain your physical and mental abilities and are not thirst-provoking. The ration is based on an allowance of one packet per person per day, but you should eat only when you feel the greatest need. Do not take any food or water the first 24 hours. Food is much less important for survival, however, than water. With water, a person can survive for 4 weeks or longer without food.

Nearly all forms of sea life are edible. Some fish are poisonous, but they seldom are found at sea. (Never eat jellyfish!) Each lifeboat has a fishing kit for catching fish.

All sea birds are edible, and practically the entire bird is useful. In addition to the food and liquid obtained from sea birds, you can fashion fishhooks and lures from the bones and feathers. In cold weather, a bird's skin (with feathers) will protect exposed parts of your body.

Birds sometimes settle on the raft or boat, and survivors have reported instances where birds landed on their shoulders. If birds are shy, try dragging a baited hook through the water or throwing a baited hook into the air.

The North Atlantic and the North Pacific have relatively few birds, and these are found mostly along

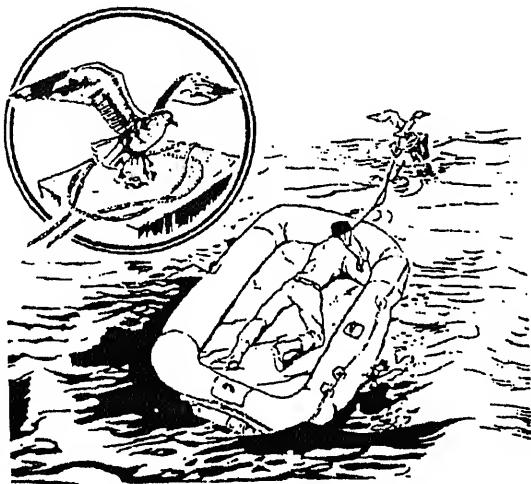


Figure 19-9.—Bird noose.

the coasts. You may see many species of birds, often hundreds of miles from land, in southern waters.

You can catch gulls, terns, gannets, and albatrosses by dragging a baited hook behind the boat or raft. You can attract them within shooting distance by dragging a bright piece of metal or shell behind the raft. It is possible to catch a bird if it lands within reach. Most birds, however, are shy and will settle on the raft out of reach. In that case, try a bird noose. Make it by tying a loose knot with two pieces of line, as shown in figure 19-9. Bait the center of the loop with fish entrails or similar bait. When the bird settles in the loop to eat the bait, tighten the noose around its feet.

Exposure

You cannot survive for any great length of time in cold water without a special exposure suit. In water cooler than 75°F, you face a serious condition called hypothermia. (This condition occurs when your body is exposed to subnormal temperatures.) To overcome this condition, try to minimize heat loss from your head, neck, sides, and groin. Raise as much of your body as possible out of the water; wear a hat; and assume the fetal position or huddle in close, side-by-side contact with others. Do not move about. Stay calm and encourage others not to panic.

Shoes and clothing are a real protection against sunburn and exposure. Remove clothing only when it is absolutely necessary. If you must remove your clothes while in the water, take off only the heaviest articles.

Because your shirt or jumper offers warmth at night as well as protection from the sun during the day, do not remove it. Sunburn is easier to prevent than to treat, so try to remain out of the direct rays of the sun. If you cannot avoid direct exposure, keep your hat on and cool your body by wetting your clothing.

In cold waters, your greatest danger after abandoning ship is the effects of the cold. Wear as much clothing as you possibly can, especially heavy undergarments. Ordinary clothing gives you no protection against cold if you are immersed in water. Since donning waterproof clothing in an abandon-ship emergency usually isn't possible, you must get out of the water as quickly as possible.

Lifeboats are uncomfortable and cold. In frigid temperatures, you must keep both ends of the inflatable lifeboat closed to keep the temperature comfortable; but this confinement creates other discomforts. Closing the ends reduces ventilation and raises the humidity. Then you must reopen the ends to let out the impure air and to bring in fresh air, which, of course, is cold.

Although remaining dry on a lifeboat is always difficult, make every effort to keep your clothing dry. Since continuous condensation of moisture causes it to drop like rain, sponge out the boat whenever possible. Cold weather aggravates these uncomfortable conditions.

Huddle together for warmth. A huddled group can survive cold that might be fatal to one person alone. Rig wind and spray shields, but do not block the sun's heat. Exercise mildly, if possible, to increase body heat; but never do so to the point of exhaustion.

Frostbite and immersion foot are serious injuries that may occur even though the body is protected by enough clothing to stay fairly comfortable. Frostbite usually affects the hands, face, or feet. Particular danger of frostbite occurs on windy, very cold days. Affected parts of the body turn stiff, pale, and numb. To prevent frostbite, keep exposed parts of the body as warm as possible and maintain circulation. If frostbite occurs, treat the affected part immediately by placing it in contact with a warm part of your body. Cover it with your hand or put frozen fingers inside your clothing. Do not rub the affected parts; that could result in damage to frozen tissue.

Immersion foot is the swelling of the foot accompanied by numbness and pallor (lack of color) or discoloration. It is caused by poor circulation in the legs, particularly when the foot remains wet for several days. To prevent immersion foot, exercise the ankles and toes

for a few minutes several times each day. Keep your feet warm, dry, and elevated as much as possible. Unlace your shoes or take them off. If you have no dry socks or wrappings for your feet, put them under the arms or in the lap of a shipmate. Never treat immersion foot by rubbing. As with frostbite, tissue damage may result. Rewarming is the only proper treatment.

MAN OVERBOARD

All the foregoing information applies mainly to ship disasters when your ship is sunk. Such events naturally occur in wartime but rarely in peacetime. A mishap that can happen to you at any time, however, and usually without warning, is to fall overboard. One minute you are walking along the main deck; the next minute you are in the water, swimming for your life.

If you should fall overboard, you can count on being rescued within a few minutes, provided someone sees you fall or hears your call for help (one of the purposes of the after lookout watch). Such rescues are made in nearly every instance. Occasionally, no one may see a person fall overboard or hear a cry for help. That person will be missed, however, and rescue procedures will then be put into action.

Should you find yourself in the water, the most important thing to do is remain calm. Panic will cause you more harm than almost anything else. If you see any floating debris nearby, hang on to it; otherwise, remove and inflate your trousers. Remember that you can stay afloat for a long time, even without aid, if you use the floating positions. Do not swim after the ship, because you will only exhaust yourself needlessly, and the ship may waste valuable time searching for you at the point where you fell overboard.

The method used to rescue a person overboard depends on the circumstances at the time. In daylight, with good weather, a helicopter (if available) normally will be used. Otherwise, the ship's motor whaleboat is used, or you may be recovered directly over the side of the ship.

Helicopters use three basic devices for recovering a person in the water: a sling, a net, and a two- or three-pronged seat. If the sling is used, adjust it so that it is across your back and under your arms with the hoisting cable in front of you. If the net is used, simply sit in it and hold on. With the two- and three-pronged seat, sit on the prongs and wrap your arms around the upright portion.

When a motor whaleboat is used for rescue, the boat crew will help you into the boat. Also a swimmer will provide assistance if you are injured or exhausted. Do not try to enter the boat from astern—you may be injured by the propeller.

If neither a helicopter nor a whaleboat can be used for rescue, the ship will maneuver to a position where a swimmer, towing a line, can reach you. After the line is fastened around your body, personnel on deck will haul you in and hoist you aboard.

While awaiting rescue, remain calm. If sharks are in the area, float on your back, using as little arm and leg movement as possible.

To decrease your chances of having to be rescued at all, observe all safety regulations. Do not lean on lifelines. Do not go on deck in bad weather unless you have to. Always wear a life jacket when working in areas where you are in danger of falling overboard. Aboard aircraft carriers, do not walk behind a jet plane turning up its engines, because the blast can blow you overboard.

Ships frequently hold man-overboard drills. In spite of these precautions, accidents do happen. Therefore, when you are at the beach, do not spend all your time sunbathing. Practice the swimming strokes and floating positions. Someday your life may depend on your ability to use them.

SURVIVAL ASHORE

Survival is largely a matter of mental outlook, and the will to survive is the deciding factor.

The experiences of hundreds of service personnel isolated during World War II and the Korean and Vietnam conflicts prove that survival is largely a matter of mental outlook. These experiences also prove that the will to survive is the deciding factor in survival. Whether with a group or alone, you will experience emotional problems resulting from fear, despair, loneliness, and boredom. Your will to live will also be taxed by injury and pain, fatigue, hunger, and thirst. Being prepared mentally to overcome all obstacles and accept the worst greatly increases your chances of coming out alive.

INDIVIDUAL SURVIVAL

The shock of being isolated behind the enemy lines, in a desolate area, or in enemy hands can be reduced or

even avoided if you remember what each letter in the key word *S-U-R-V-I-V-A-L* stands for.

S-ize up the situation

Undue haste makes waste

Remember where you are

Vanquish fear and panic

Improvise

Value living

Act like the natives

Learn basic skills

S-Size up the situation by considering yourself, the country, and the enemy.

In considering yourself, hope for the best, but be prepared for the worst. Get to a safe, comfortable place as quickly as possible. Once there, look things over, think, and form a plan. Your fear will lessen and your confidence will increase. Be calm. Take it easy until you know where you are and where you are going.

Part of your fear may come from being in a strange country; therefore, try to determine where you are by landmarks, compass directions, or by recalling intelligence information passed on to you by your leaders.

In considering the enemy, put yourself in the enemy's shoes. What would you do? Watch the enemy's habits and routines. Base your plan on your observation. Remember, you know where the enemy is; the enemy does not know where you are.

U-Undue haste makes waste.

Do not be too eager to move. That will make you careless and impatient. If you begin to take unnecessary risks, you have a good chance of being captured. Do not lose your temper; doing so may cause you to stop thinking. When something irritating happens, stop, take a deep breath, relax, and start over.

Face the facts—danger does exist. To try to convince yourself otherwise only adds to the danger.

R-Remember where you are.

You may give yourself away because you are used to acting in a certain way. Doing "what comes naturally" could be the tipoff that you do not belong there.

V-Vanquish fear and panic.

To feel fear is normal and necessary. It is nature's way of giving you that extra shot of energy just when you need it. Learn to recognize fear for what it is and control it. Look carefully at a situation and determine if your fear is justified. When you investigate, you will usually find many of your fears unreal.

When injured and in pain, you will have difficulty controlling fear. Pain sometimes turns fear into panic and causes you to act without thinking. Loneliness can also cause panic. It can lead to hopelessness, thoughts of suicide, and carelessness—even capture or surrender. Recognizing these signs helps you overcome panic.

I-Improvise.

You can always do something to improve the situation. Figure out what you need, take stock of what you have, and then improvise. Learn to put up with new and unpleasant conditions. Keeping your mind on SURVIVAL will help. Do not be afraid to try strange foods.

V-Value living.

Conserve your health and strength. Illness or injury will greatly reduce your chances of survival and escape. Hunger, cold, and fatigue lower your efficiency and stamina, make you careless, and increase the possibility of capture. Knowing that will make you especially careful because you will realize your low spirits are the result of your physical condition and not the danger. Remember your goal—getting out alive. Concentrating on the future—on the time when you will return home—will help you value living during your survival situation.

A-Act like the natives.

"At a railroad station, there were German guards," one World War II male escapee related. "I had an urgent need to go to the rest room. The only rest room was an exposed one in front of the station. I felt too embarrassed to relieve myself in front of all passersby. I walked throughout the entire town, occasionally stopping and inquiring if a rest room were available."

This man was detected and captured because he failed to accept the customs of the natives. When you are in a foreign country, accept and adopt native behavior to avoid attracting attention to yourself.

L-Learn basic skills.

The best life insurance is to make sure you learn the techniques and procedures for survival so thoroughly that they become automatic. That increases the chances

that you will do the right thing, even in panic. What you know about survival could save your life. Be inquisitive and search for additional survival knowledge.

GROUP SURVIVAL

Just as you must make your reactions to survival situations automatic, so must the entire squad, platoon, or other group that you might be a member of or be leading. The best chance for survival belongs to the group that works TOGETHER and has a leader who accepts responsibility for the group. When you are the senior person, accept responsibility for your group by taking steps to lead members to work together.

Organize group survival activities. Group survival depends largely upon the organization of its manpower. Organized action by group members who know what to do and when to do it, during ordinary circumstances and during a crisis, prevents panic. Keeping the group informed, devising a plan, and sticking to the plan helps achieve organization.

Assume command and establish a chain of command that includes all members of the group. Good leadership lessens panic, confusion, and disorganization. Make certain each person knows his or her position in the chain of command and is familiar with the duties of every other person, especially your duties as the senior member. Under no circumstances leave leadership of the group to chance acceptance by some member after a situation arises.

Maintain respect for your leadership by using it wisely; be the leader and set the example. Group survival is a test of effective leadership. Watch out for problems that could turn into serious arguments. Keep troublemakers from attracting undue attention, and keep those who may "crack up" from disrupting the group. Prevent carelessness caused by fatigue, hunger, and cold. Know yourself and the members of your group; take responsibility for each person's welfare.

Develop a feeling of mutual dependence within the group by stressing that each person depends on the others for survival. Emphasize that the group will not leave the wounded or injured behind—that each member's responsibility is to make sure the group returns intact. A feeling of mutual dependence fosters high morale and unity. Each member receives support and strength from the others.

Make the decisions no matter what the situation. However, base your decisions on the information and advice of other members of the group—much as admirals

make decisions based on input from their staff. Above all else, never appear indecisive.

If situations require you to act immediately, consider the facts and make decisions rapidly. The ability to think on your feet usually determines successful survival.

STRESS OF SURVIVAL

Survival is a state of mind. Your ability to return to your group or to be rescued depends in a great part on your ability to cope with frustrations. You may become frustrated because you find you are unable to accomplish specific tasks. Perhaps you are hungry, cold, lost, injured, or lack the proper equipment. Being able to improvise equipment, care for your physical needs, and provide first aid for your injuries will help you to control your environment, reactions, and emotions. Do not be afraid to experiment and use your imagination. A logical experimental approach is the best way to solve most problems.

Remember the following rules:

1. Almost everything is useful—do not throw away anything.
2. You can be lazier than you would expect, if you just think. The least effort can be the most efficient.
3. Everything you do should be oriented toward rescue.
4. If your surrounding conditions do not suit your needs, do what you can to change them.

SURVIVAL TECHNIQUES

As a member of the armed forces, you always face the chance of being exposed to conditions that can force you into a life-or-death struggle. However, you can remain alive anywhere in the world when you keep your wits. Remember that nature and the elements are neither your friend nor your enemy. By using your wits, you can make them work for you instead of allowing them to work against you.

Survival depends on you. You must be physically fit and know how to locate or collect water. You must know what plants and animals are available for food, how to find or catch them, how to prepare them, and how to recognize those which will harm you. The more you know about the conditions peculiar to the region you are in, including the plant and animal life, the better are your chances for survival.

Water

Without water your chances of living are slight, and all the food in the area means little. That is especially true in hot climates where you sweat a lot. Even in cold weather your body needs at least 2 quarts of water each day; a lesser amount reduces your efficiency.

When you can find no surface water, tap through the earth's water table for ground water—rain or melted snow that has filtered through the ground. Access to this table and its supply of generally pure water depends upon the contour of the land and the character of the soil.

You may find runoff water above the water table, which includes streams, stagnant pools, and water in bogs. Consider this water contaminated and dangerous even if it is away from human habitation. Boil or treat this water with water purification tablets before you drink it.

Watch for water indicators when you are isolated in the desert or arid regions. Some of the signs include plants covering animal trails and the direction in which certain birds fly. By searching in areas toward which these birds fly, you will probably find water.

Places that are visibly damp, where animals have scratched, or where flies hover indicate recent surface water. Dig in those spots for water.

Leave your handkerchief out on clear nights to collect dew; then squeeze the water into a container. During a heavy dew, you should be able to collect about a pint an hour.

If you are unsuccessful in your search for ground or runoff water or if you do not have time to purify questionable water, a water-yielding plant may be your best bet. You can easily get clear, sweet sap that is pure and chiefly water from many plants. Many plants with fleshy leaves or stems store drinkable water. Try them wherever you find them. Desert plants often have their roots near the surface. Pry these roots out of the ground and cut them into 24- to 36-inch lengths. Remove the bark and suck out the water.

Not all vines yield palatable water, but try any vine you find. Use the following method for tapping a vine. It will work on any species. Cut a deep notch in the vine as high up as you can reach. Then cut the vine off close to the ground and let the water drip into your mouth or a container. When the water ceases to drip, cut another section off the vine. Repeat this procedure until the supply of fluid is exhausted (fig. 19-10). If the liquid is a white sap or very dark in color, it is not drinkable. If

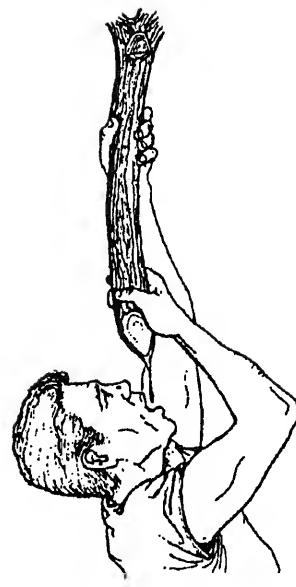


Figure 19-10.—Extracting water from vines.

the liquid is clear, test it for odor. If it is slightly pink or red in color, that normally indicates the presence of tannic acid, which is not harmful. If it has no taste, or does not taste bad, it is a good source of water.

Food

It takes little reasoning to recognize that your second requirement is food. That is especially true during a time of survival when you need every ounce of energy and endurance that you can muster.

People have been known to live for more than a month without food; but unless you are in extremely difficult circumstances, you need not be deprived of something to eat. Used properly, nature can provide you with food. Apply the following rules as soon as you realize you are isolated:

1. Inventory your rations and water. Estimate the length of time you will be on your own.
2. Divide your food—two-thirds for the first half of your isolation and one-third for the second half.
3. Avoid dry, starchy, and highly flavored foods and meats if you have less than 1 quart of water for each day. Remember—eating makes you thirsty. Eat food high in carbohydrates—hard candy, fruit bars, and so on.

4. Keep strenuous work to a minimum. The less you work, the less food and water you require.
5. Eat regularly if possible—do not nibble. Plan one good meal each day and cook it if you can. Cooking makes food safer, more digestible, and better tasting. Also, the time you spend cooking will give you a rest period in which you can relax.
6. Always be on the lookout for food. With few exceptions, everything you see that walks, crawls, swims, or grows from the soil is edible. Learn to live off the land.

PLANTS.—Experts estimate that about 300,000 classified plants grow on the earth's surface, including many that grow on mountain tops and ocean floors. Of these, 120,000 varieties are edible. Obviously, you will not be able to learn about all of these plants from reading this chapter. But if you know what types of food to look for in the area in which you are stranded, can identify them, and know how to prepare them properly, you should find enough to keep you alive. You may even surprise yourself with a delicious meal.

Eat those plants available in the area to provide you with needed energy while you search for meat. You can



Figure 19-11.—Wild potato.

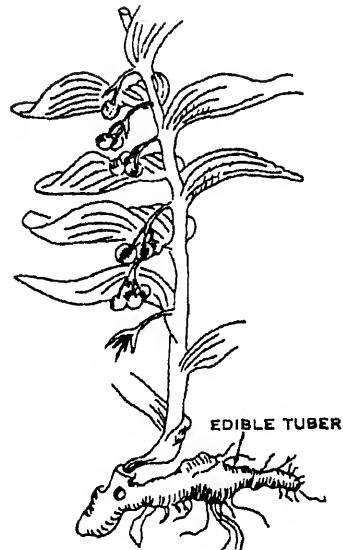


Figure 19-12.—Solomon's seal.

depend on them to keep you alive if you are injured, unarmed in enemy territory, or in an area where wildlife is not abundant. Although plant food may not provide a balanced diet, especially in the Arctic where heat-producing qualities of meat are essential, it will sustain you. Many plant foods, like nuts and seeds, will give you enough protein for normal efficiency. In all cases, plants provide energy and calorie-giving carbohydrates.

Most sources of plant foods (fruits, nuts, berries) have one or more parts that have a lot of food value. For example, certain roots and other underground parts of plants that are rich in starch are excellent sources of food. Some examples are as follows:

1. **WILD POTATO.** The wild potato is an example of an edible tuber (fig. 19-11). This small plant is found throughout the world, especially in the tropics.
2. **SOLOMON'S SEAL.** Tubers of Solomon's seal (fig. 19-12) grow on small plants found in North America, Europe, Northern Asia, and Jamaica. Boiled or roasted, they taste much like parsnips.
3. **WATER CHESTNUTS.** The water chestnut is a native of Asia, but it has spread to both tropical and temperate areas of the world including North America, Africa, and Australia. It is found as a free-floating plant on rivers, lakes, and ponds in quiet water. The plant covers large areas wherever it grows. It has two kinds of leaves—the submerged leaf, which is long, rootlike, and feathery, and the floating leaf, which forms a rosette

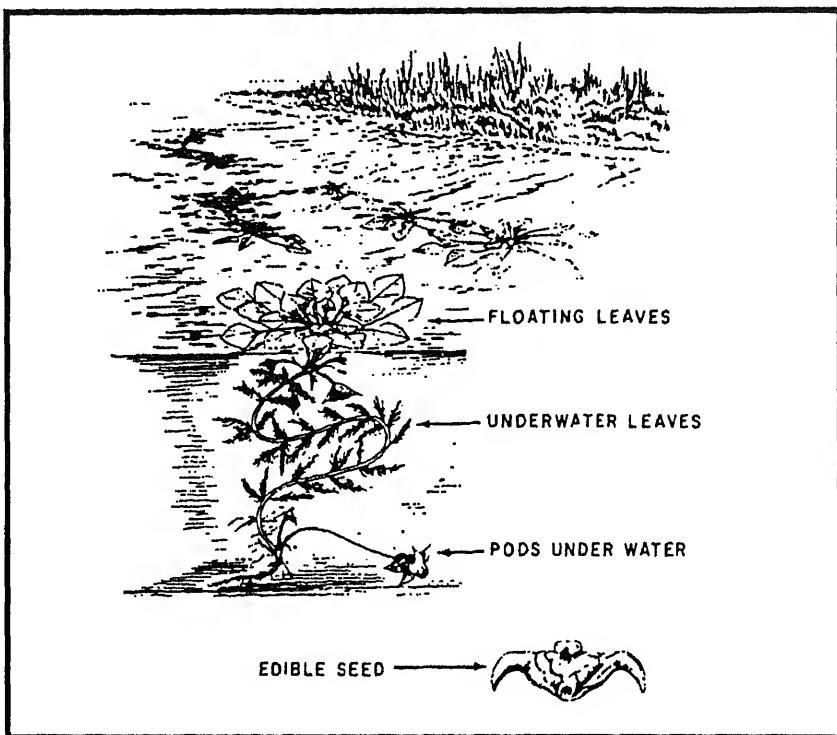


Figure 19-13.—Water chestnut.

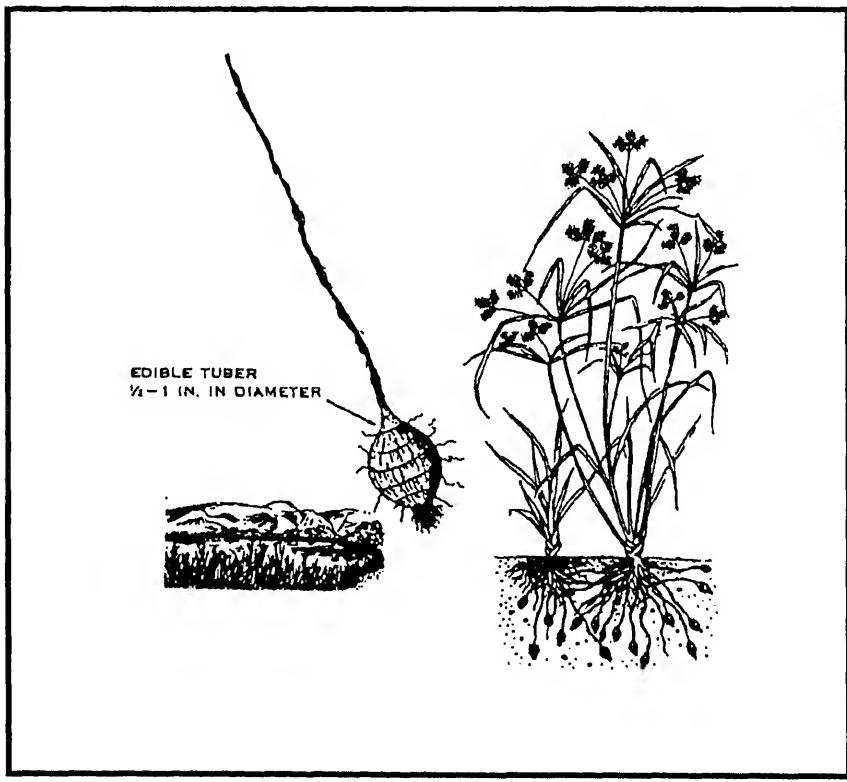


Figure 19-14.—Nut grass.

on the surface of the water. Beneath the water, the plant bears nuts that are 1 to 2 inches broad with strong spines that give them the appearance of a horned steer (fig. 19-13). You can roast or boil the seed inside the horny structure.

4. NUT GRASS. Nut grass is widespread in many parts of the world. Look for it in moist, sandy places along the margins of streams, ponds, and ditches. It occurs in both tropical and temperate climates. The grass differs from true grass in because it has a

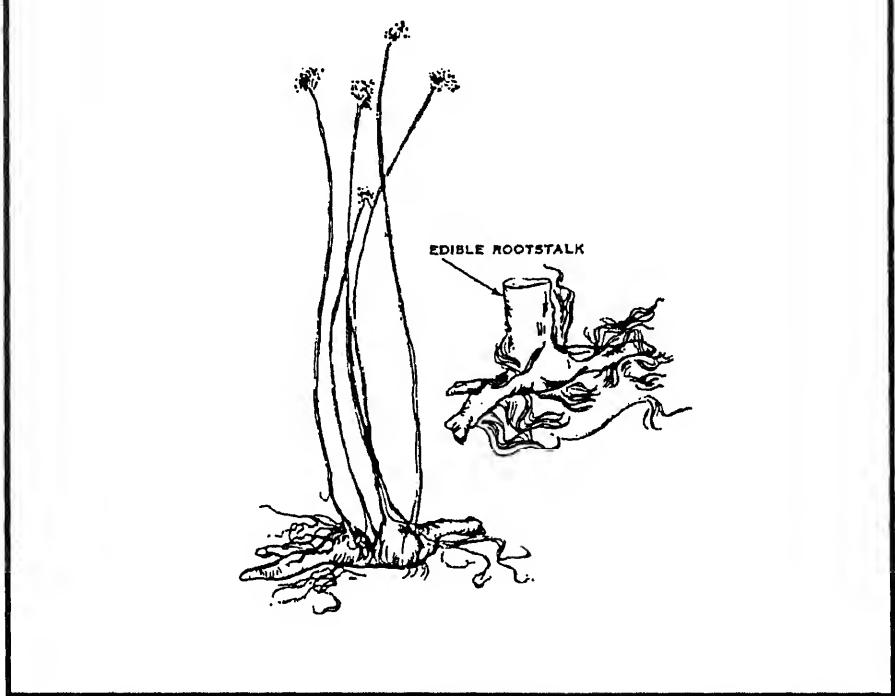


Figure 19-15.—Bulrush.

three-angle stem and thick underground tubers that grow 1/2 to 1 inch in diameter. (See fig. 19-14.) These tubers are sweet and nutty. Boil, peel, and grind them into flour; you can use the flour as a coffee substitute.

5. BULRUSH. Bulrush is a tall plant found in the wet, swampy areas of North America, Africa, Australia, the East Indies, and Malaya. (See fig. 19-15.) You may eat the roots and white stem base cooked or raw.

ANIMALS.—Foods derived from animals have more food value per pound than those derived from plants. Learning what parts of animals you can eat or use in other ways and learning how to prepare animals for cooking increase your chances of survival.

You should cook most birds with the skin on to retain their food value. After plucking a bird, cut off the neck close to the body and take out the internal organs through the cavity. Wash out the cavity with fresh, clean water. Save the neck, liver, and heart for stew. Scalding most birds makes them easier to pluck. Waterfowl are an exception; they are easier to pluck when dry. Boil scavenger birds, like buzzards and vultures, at least 20 minutes before you cook them to kill parasites. Save all the feathers you pluck from the birds. You may use them for insulating your shoes or clothing or for bedding. Birds' eggs are among the safest of foods. You can hard boil eggs and carry them for days as reserve food.

Clean and dress the carcass of a fur-bearing animal as soon as possible after death, because to delay will make your job harder. Cut the animal's throat and allow the blood to drain into a container. The boiled blood is a valuable source of food and salt. Save the kidneys, liver, and heart. Use the fat surrounding the intestines. All parts of the animal are edible, including the meaty parts of the skull, such as the brain, eyes, tongue, and flesh.

Crabs, crayfish, shrimp, prawns, and other crustaceans are excellent sources of food. Crustaceans spoil rapidly, however, so boil them alive immediately after capture. You can steam, boil, or bake shellfish such as clams, oysters, and conchs in the shell. Shellfish make an excellent stew when cooked with greens or tubers.

You can easily catch grasshoppers, locusts, large grubs, termites, ants, and other insects to provide nourishment in an emergency.

Methods of Cooking and Preserving Foods

Besides making most foods more tasty and digestible, cooking makes them safer to eat by destroying bacteria, toxins, and harmful elements in the food. Your survival chances increase as your knowledge of field survival skills increases. Survival skills include your ability to improvise and to apply the following

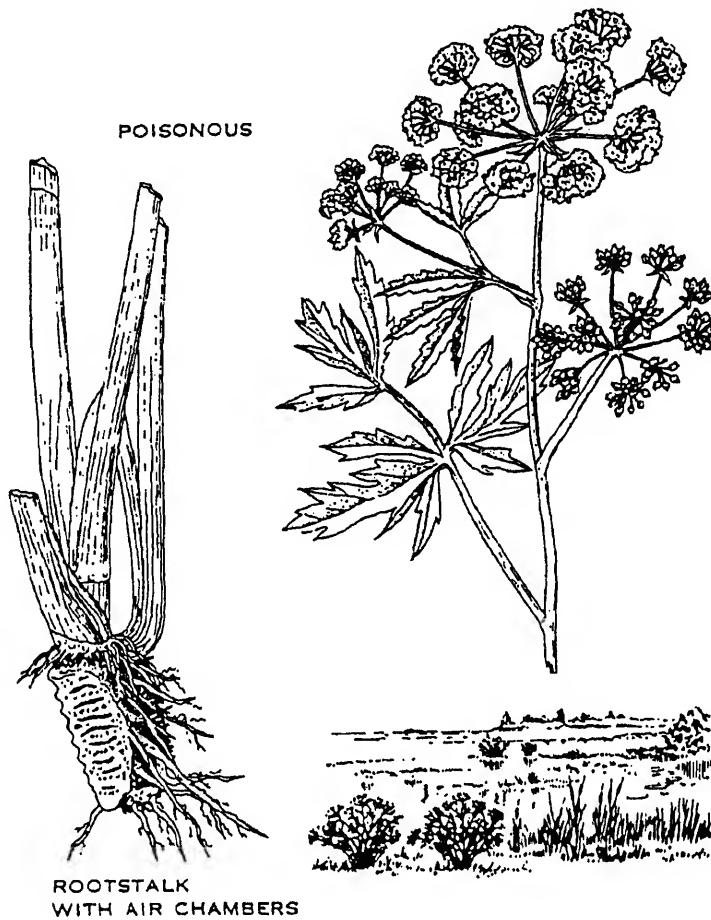


Figure 19-16.—Water hemlock.

principles of cooking and preserving the foods you obtain in the field:

ROASTING OR BROILING. This is a quick way to prepare wild plant foods and tender meats. Roast meat by putting it on a stick and holding it near the embers of your fire. Roasting hardens the outside of the meat and retains the juices.

BAKING. Baking is cooking in an oven over steady, moderate heat. The oven may be a pit under your fire, a closed vessel, or a leaf or clay wrapping. Pit cooking protects food from flies and other pests and reveals no flame at night.

STEAMING. You can steam foods that require little cooking, like shellfish. Place your food in a pit filled with heated stones over which leaves are placed. Put more leaves over your food. Then force a stick through the leaves down to the food pocket. Pack a layer of dirt on top of the leaves and around the stick. Remove the

stick and pour water to the food through the hole that remains. Steaming is a slow but effective way to cook.

PARCHING. Parching may be a desirable method of preparing some foods, especially grains and nuts. To parch, place the food in a metal container and heat slowly until it is thoroughly scorched. In the absence of a suitable container, use anything that holds food or water—a heated, flat stone; turtle shells; seashells; leaves; bamboo; or a section of bark.

DRYING. Drying preserves food by ridding it of moisture. You can dry plant food and meat by exposing them to wind, sun, air, fire, or any combination of these. To produce jerky, cut meat into 1/4-inch strips and place it across grates; allow it to dry in either the wind or smoke until brittle.

The methods of preserving fish and birds are much the same as those for preserving other meats. To prepare fish for smoking, cut off the heads and remove the backbones. Then spread the fish flat and thread a skewer



Figure 19-17.—Fly agaric.

through them to hold them in that position. Thin willow branches with bark removed make good skewers. You may also dry fish in the sun. When the meat dries, splash it with seawater to salt the outside. Do not keep seafood unless it is well dried and salted.

To dry fruit, cut it into thin slices and place the slices in the sun or before a fire. Mushrooms dry easily. You may keep them indefinitely, but soak them in water before using.

Harmful Plant and Animal Foods

Although you will encounter relatively few poisonous plants and animals, you should learn to recognize and avoid them.

Some places, such as the Arctic and subarctic regions, have less than a dozen plants that are poisonous. These include the water hemlock (fig. 19-16) and the poisonous mushrooms (figs. 19-17 and 19-18).

The tropics have no greater proportion of poisonous plants than the United States. If you are in doubt about whether plants are poisonous or nonpoisonous, observe the habits of vegetable-eating animals, such as birds, rodents, monkeys, baboons, and bears. Usually the foods these animals eat are safe for humans. Cook all plant foods because cooking removes plant poisons except those in poisonous mushrooms. Avoid eating plants that taste bitter. Also avoid eating untested plants

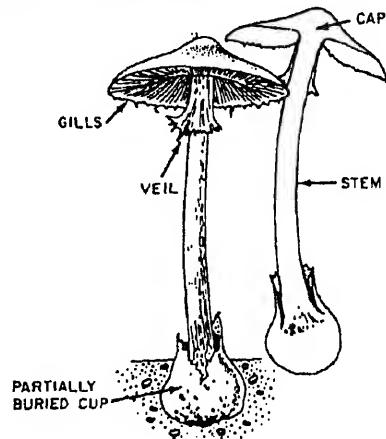


Figure 19-18.—Death angel with gills, veil, stem, and cup.

that have milky juices. Do not let the milky juice contact your skin.

You may eat most animals; but some, like mollusks, may introduce parasites into your body—especially if you eat them uncooked or when they are not fresh. Crustaceans are almost always edible, but they spoil rapidly and may harbor harmful parasites. Be sure to cook the freshwater variety; eat the saltwater variety raw if you desire.

You have no simple way of telling whether a fish is edible. That depends on the place in which they live, their source of food, or even the season of the year. Often fish that are edible in one area of the world are not in another. At first, eat only small portions of any fish. If you feel no ill effects, you can probably continue to eat the fish safely.

EVASION

According to the Code of Conduct for Members of the Armed Forces of the United States, it is your duty to evade capture by the enemy. Your job is to GET BACK to your unit. Your survival will depend on your ability to apply the techniques of evasion. No other reason is more important for making evasion techniques part of your basic combat skills.

Evasion means traveling through enemy-held territory without being captured.

Falling into the hands of the enemy is an event that no military person wants to experience. However, at some point in your career you may find yourself in a

situation where capture is a possibility. You need to know a few basic evasion principles to decrease your chances of winding up as a guest of the enemy.

During World War II and the succeeding actions in Korea and Vietnam, many of our soldiers, sailors, and marines were able to avoid the enemy and safely return to friendly forces. They were successful because they applied some or all of the guidelines presented in the following paragraphs. You need to learn this information so that you know how to evade the enemy. It could mean the difference between freedom or capture; interrogation; and possibly, inhumane treatment by enemy forces.

Obviously, the most important consideration in evasion is knowing of where the enemy is located. If you do not know the enemy's location, watch for the following signs. They can tell you the enemy's location as well as other valuable information.

1. Signs that groups have passed, such as crushed grass, broken branches, footprints, cigarette butts, or other discarded trash, may reveal their identity and size, their direction of travel, and the time they passed through.
2. Workers in fields may indicate absence of the enemy.
3. Apparently normal activities in villages may indicate absence of the enemy.

Less obvious conditions may indicate the presence of the enemy, such as the following:

1. The absence of workers in fields is an indication that the enemy is near.
2. The absence of children in a village is an indication that the children have been hidden to protect them from action that may take place.
3. The absence of young people in a village is an indication that the village is controlled by the enemy.

Some evasion techniques you may find useful are cover, concealment, and camouflage. To keep yourself from being seen, you may have to hide in bushes or lie flat in shallow ditches using brush as a cover or camouflage.

When evading the enemy, remember the following points:

1. Conceal yourself from enemy aircraft and nearby enemy troops.

2. Move quietly; noises carry in fog, fallen snow, heavy foliage, and over rock faces.
3. Maintain personal hygiene to prevent body odor; cover body waste and scraps of food; avoid activities, such as cooking and smoking, that produce smells; such smells can reveal your location.
4. Do not make sudden, rapid movements that can reveal your location.
5. Select routes for movement that avoid exposed areas and do not show your silhouette against the skyline. Do not leave obvious tracks.

Crude Direction-Finding Techniques

How do you determine direction without a compass? Nature has many ways to help you. Nature also has many ways to fool you. The two best crude sources of direction are the sun and the stars, but you must know how to use them.

To use the sun, you must first understand that the sun travels from the eastern sky to the western sky. How can you use the sun to determine an east-west direction? You can use shadows (even on a cloudy day) made by the sun to get an accurate east-west line. On a flat surface, drive a stick 3 or 4 feet high in the ground; then mark the tip of the stick's shadow with a rock. If you wait awhile and then mark the shadow again, you will see that the line connecting the tips of the shadows inscribes an east-west line on the ground.

To use the stars, you must have a clear night. You may locate north by finding the North Star (Polaris), the outermost star in the handle of the Little Dipper.

These are very crude direction-finding techniques; you may only use them in the Northern Hemisphere. If your ship or aircraft is going to be operating in the Southern Hemisphere, you should learn the techniques for that area of the world.

Evasion Travel

The route that you select to travel while trying to evade the enemy depends upon your situation, the weather conditions, and the nature of the terrain. Whether you select a ridge, stream, valley, coastline, dense forest, or mountain range to follow, be sure it is the safest, rather than the easiest, way. Experience has proved that the most difficult route is frequently the safest.

A route along a ridge line usually is easier to follow than one through a valley. You can frequently use animal trails on top of ridges to guide your travel. When following a ridge-top trail, stay below the trail and move parallel to it. Remember never to travel along the top of a ridge; by doing so, you will present an easily identifiable silhouette against the skyline.

The use of a stream as a route is of particular advantage in a strange country. It provides a fairly definite course and might lead to populated areas. It is a potential food and water source and may provide you a means of travel by boat or raft.

Following a coastline will lead you on a long, roundabout route. However, a coastline serves as a good starting point. It is an excellent base line from which to get your bearings and a probable source of food.

If you are traveling in a dense forest, you probably will not be able to spot distant landmarks. You can stay on course by lining up two trees forward of your position in your direction of travel. As soon as you pass the first one, line up another beyond the second. You might find it helpful to look back occasionally to check the relative positions of landmarks.

You can mark your route with bent bushes, rocks, or notches placed on the backsides of trees at approximately eye level. Make bush marks by cutting vegetation or bending it so that the under, lighter sides of the leaves are facing upward. These signs are especially conspicuous in dense vegetation, but you should be cautious in using them. By plainly marking your route, you risk discovery.

Follow trails that lead in your general direction; when you come to a fork, follow the path that appears most traveled. If you follow the wrong trail and become lost, stop and try to remember the last time you were sure of where you were. Mark your location and start backtracking. Sooner or later you will discover a recognizable feature with which you can pinpoint your position.

You might have to detour frequently in rough country. To do that, you might try to follow the method illustrated in figure 19-19 for estimating distance and average angle of departure for short detours. On your return from the detour, you estimate the angle and distance to regain your original line of travel. For greater accuracy, count paces and use a compass. Another method, shown in figure 19-20, allows you to select a prominent landmark ahead and behind your line of travel. On returning from your detour, walk until you are

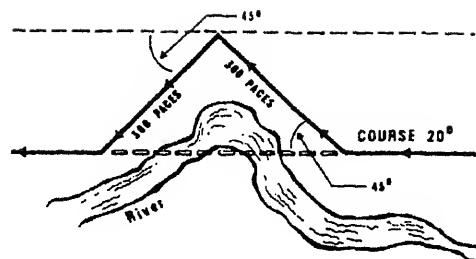


Figure 19-19.—Estimating distance and average angle of departure.

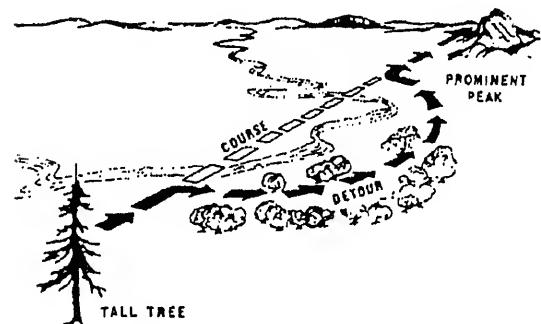


Figure 19-20.—Using prominent landmarks.

again lined up on the two landmarks; then follow your original course.

Travel Tips

Be patient, cautious, and avoid overconfidence. An enemy approach is no cause for panic. Normally, you have a good chance of remaining unobserved.

Conserve your strength by avoiding exhaustion. When compelled to remain in one place for an extended period, exercise moderately to keep fit.

Generally, avoid eating uncooked food or drinking unboiled water. Select a hiding place to cook the food and boil the water you will use en route to the next evasion objective.

Hold on to items of personal clothing and equipment; they serve a useful purpose during evasion. Keep some items that will identify you as a military person, such as your dog tags. If you cannot positively identify yourself as a military person, you may be treated as a spy if captured or be refused assistance by escape organizations or friendly natives.

Do not leave or throw away any articles that, if found, could give the enemy a clear picture of your direction of travel. Bury, or otherwise dispose of, the effects of your campsite.

Practice supply economy. You may have to use the same jacket or pair of shoes throughout the entire evasion trip, which may cover hundreds of cross-country miles during both winter and summer seasons. Build up your food and water supplies and carefully ration them so that they will last until you can reach an evasion objective or can replenish them. In the event you have food but no water, do not eat. Since the digestive processes require water, you will dehydrate faster if you eat.

Use firearms only in an emergency. Keep them concealed at all times during your evasion unless a situation arises that requires a show of arms.

Avoid contact with people as long as possible. However, if you cannot proceed on your own because of sickness, lack of food, or other compelling reasons, then, and only then, seek out native assistance. Natives who are sympathetic to the allied cause or members of the underground who operate escape lines for the purpose of returning evaders to allied control may offer assistance. Be wary in contacting natives or accepting their help, regardless of what they claim to be.

If you are fortunate enough to travel through an area where an organized escape line exists, the chances are good that a spotter will seek you out. Spotters for resistance or underground organizations are particularly alert when they have reason to believe allied evaders are in their area—but so are enemy police and counterintelligence agents. Persons wearing civilian clothing in enemy-held territory are not necessarily civilians.

Crucial Phase of Evasion

To establish contact with friendly lines or to cross the border to a neutral country is the most crucial point of evasion. All of your patience, planning, and hardships will have been in vain if you are not wary in contacting friendly frontline forces. Many personnel attempting to pass through friendly lines have been killed because they did not identify themselves properly. Most of these people would not have been shot had they exercised caution and followed proper procedures. The normal tendency is to throw caution to the wind when in sight of friendly forces. You must control this tendency.

Regular patrols or special mission personnel operating behind enemy lines are given the challenge and password of the day as a security measure. That provides for the identification of the patrol as it approaches a friendly position. In addition, frontline troops are told the time and place where patrols will leave and enter the lines. These conditions exist only if you are able to rejoin your outfit within 24 hours following your separation. After 24 hours, you must follow certain established procedures and hope the frontline troops will also follow them. Usually frontline troops, and especially those employed several miles forward of the forward edge of the battle area, shoot first and ask questions later. Contact with these troops is, at the very least, sensitive and a calculated risk. However, in the absence of an opportunity to contact a friendly patrol, contact with frontline troops may be your only alternative. Generally, frontline troops are told to honor the display of a white flag or another white object and to advance the unknown person to be recognized.

Once back in friendly hands, you will naturally want to talk about your exploits and will undoubtedly receive countless questions from frontline troops. However, that is the time you should remain silent; if you talk at this point, you may endanger the lives of those who helped you. In addition, you may compromise methods other service personnel might use to evade the enemy and get out safely. Give only information of immediate tactical importance to frontline units. Advise the first officer or petty officer contacted that you are returning to duty from missing in action, prisoner of war, or internment status. Then request to be taken to someone authorized to receive evasion and escape information.

These survival techniques are but a few of the ways you can stay alive and live to return to friendly forces. You can gain an in-depth knowledge of survival, evasion, and escape techniques through special training. The Navy provides this special training at survival, evasion, resistance, and escape (SERE) schools located at strategic locations throughout the world.

ESCAPE

If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

What happens if you become a prisoner of war (POW)? After all, it is possible. Isolation, fear, injury—all work in favor of the enemy to increase your chances of capture, in spite of a determined effort on your part to evade. The surrender of your arms, however, does not mean you forfeit your responsibilities as a member of the American armed forces. *The armed forces Code of Conduct directs that you begin planning your escape the minute you are taken prisoner.*

Escape is tough; making it work is even tougher. It demands courage, cunning, and much planning in seeking ways out, determining what routes to follow, and locating friends. Above all, it demands physical stamina—stamina you must acquire under the worst conditions imaginable. Experience has proven that "model" camps with regular rations and considerate treatment are the exception. But no matter what extremes you encounter as a POW, strive to keep yourself physically able and sufficiently equipped to escape as soon as possible.

If captured, try to make your escape early. You may never be in any better physical condition to escape than at the moment you are captured. Prison rations are barely enough to sustain life; they certainly won't supply you with a reserve of energy. The physical treatment, lack of medical care, and insufficient rations of prison life soon have effects such as physical weakness; night blindness; and loss of coordination, reasoning power, and morale.

There are other reasons for making your escape early after your capture. Friendly artillery fire or air strikes occurring during that time may increase your chances of getting away. The first guards you will have are not as well trained in handling prisoners as those farther back from the front lines. Some of the line guards may even be walking wounded who are distracted by their own condition. In addition, you know something about the terrain where you are captured, and you know the approximate location of friendly units. Several days later and many miles away, you may be in strange territory. An escape from a prison camp is much more difficult and requires more detailed planning. It must be organized and supported as any other military operation.

The method you should use to escape depends on your particular situation. The only general rules are to make an early escape and to escape when the enemy's attention is distracted.

Save, Add to, Take Care of (S-A-T)

Since the conditions in various POW camps differ, it is impossible to provide a specific escape or survival plan for each situation. What you need is a guide to help you plan to make the best of what you have. One such guide is to remember the word S-A-T—SAVE, ADD TO, TAKE CARE OF.

SAVE.—SAVE what you can in a POW camp—clothing, pieces of metal, cloth, paper, string—anything! A piece of twine may mean success or failure when the time comes for you to break out. Hide these items under the floor or in a hole in the ground. Since they appear harmless, little or nothing will be done to punish you if they are discovered.

Wear as few clothes as possible during your imprisonment. SAVE your shoes, underwear, shirts, jacket, and any other items of clothing that will protect you from the elements to wear during your escape.

SAVE any nonperishable foods you receive from the Red Cross or your captors. Candy, for example, comes in handy as a quick source of energy when you are traveling. If no candy source is available, SAVE each issue of sugar given you by the enemy. When you get enough, boil it down into hard candy. SAVE it until you build up your supply. Store any canned foods you receive. The enemy might puncture the cans to prevent you from saving them. However, you can recook some food into another form that preserves it. Other foods to hoard against the day of your escape include suet (a hard fat), cooked meat, nuts, and bread.

SAVE pieces of metal no matter how insignificant they may seem. Nails and pins can serve as buttons or fasteners. You can use old cans to improvise knives, cups, or food containers. If you are fortunate enough to have a razor blade, guard it. Use it for shaving only. Devise ways of sharpening it—rub it on glass or stone or some other hard surface. A clean shave is a good morale booster.

SAVE your strength but keep active. A walk around the compound or a few mild calisthenics will keep your muscles toned. Sleep as much as you can. You will not get much rest on your way back.

ADD TO.—Use your ingenuity. Select those items that you cannot get along without and supplement them; for example, your rations. There is more to eat in and around your compound than you think. When you are allowed to roam around the prison campgrounds, look for natural foods native to the area, such as roots, grasses, leaves, barks, and insects. If possible, ADD

these foods to your escape cache (supplies). They will keep you alive when the going gets tough.

Supplement your clothing so that the more durable garments are in good repair when you escape. A block of wood and a piece of cloth make good moccasins; that saves wear on your shoes. Substitute rags for gloves; weave straw into hats. Do not forget to salvage clothing from the dead.

TAKE CARE OF.—Probably the most important part of any plan for survival is the TAKE-CARE-OF phase. Maintain what you have. You won't receive a reissue of shoes or clothes that you wear out or lose. Also, maintain your health; it is not easy to regain once you lose it.

Put some of your clothing into your escape cache. Watch the rest for early signs of wear, and repair them with improvised material if needed. Use a needle made from a thorn, nail, or splinter and thread from unraveled cloth to mend a torn pair of trousers. Wood, canvas, or cardboard bound to the soles of your shoes will save them from wear. Even paper will suffice as a reinforcing insole if your shoes do wear through.

Maintaining Your Health

Good physical health is essential to survival under any circumstances. It is especially important in a POW camp where living conditions are crowded and food and shelter are lacking. That means you must use every device possible to keep yourself well.

Soap and water provide a basic preventive medicine; so keep clean. If water is scarce, collect rainwater, use dew, or simply rub yourself daily with a cloth or your bare hands. Pay attention to areas on your body that are likely to develop rash and fungus infection—your crotch, your scalp, and between your toes.

Keeping clean also applies to your clothing. Use soap and water when you can spare it. Hang your clothes in the sun to air if soap and water are not available. Examine the seams of your clothing and the hairy portions on your body frequently for lice and their eggs. Disease-infected lice can kill. A possible way to get laundry service, or even a bath, is to tell your guard that you are infested with lice, whether or not your complaint is true. The prison authorities, fearing that lice on prisoners may cause an outbreak of louse-borne disease among the civilian and guard population, might provide this service.

If you become ill, report your condition to the camp authorities. The chance that you will receive aid is worth the try.

After You Escape

Once you escape, you may have trouble contacting friendly units even when you know where they are. Approach the problem as you would if you were a member of a lost patrol. Time your movements so that you pass through the enemy forward areas at night and arrive between the enemy and friendly units at dawn. A good plan is to find a ditch or shell hole where you have cover from both friendly and enemy fire. Attract the attention of the friendly forces by waving a white cloth, shouting, exposing or laying out a panel, or some other method. In doing so, you alert friendly forces who are prepared to accept any small group that appears willing to regain contact. When you alert friendly forces, they are not as likely to shoot you on sight.

SUMMARY

You will probably spend the majority of your naval career aboard ship. Hopefully you will never fall or be washed overboard or have to abandon ship.

The U.S. Navy operates in all parts of the world—from the tropics to polar regions. Each region has its own special survival problems. You may encounter the extreme cold of the polar regions or the heat and humidity of a tropical jungle. Your survival in these places will depend on your ability to take care of yourself. Knowing how to combat hypothermia or heat exhaustion will greatly increase your chances for survival.

Although it could happen, hopefully you will never find yourself stranded in enemy-held territory. To be captured by an enemy force is one of the worst situations you could face. Being properly prepared to make an escape and return to your unit is not only your duty, but what every POW thinks about. Knowing how to make that escape work is even more difficult. Knowing what the local environment has to offer in food and water supplies will help you survive during your escape. Maintaining the proper state of mind will greatly increase your chances of making a successful escape.

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CHAPTER 20

FIRST AID AND PERSONAL HYGIENE

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Explain the purpose of first-aid treatment.
2. State the general rules and limitations of first aid.
3. Describe the procedures for administering artificial ventilation.
4. Explain the procedure for administering cardiopulmonary resuscitation (CPR).
5. Describe the procedures for administering the abdominal or chest thrust.
6. Explain the procedures for controlling arterial and venous bleeding by the use of the compression, finger pressure, and tourniquet methods.
7. Explain the procedures used to apply battle dressings.
8. Describe the symptoms and immediate treatment for shock.
9. Recognize the symptoms and classifications of burns.
10. Describe the first-aid treatment for burns.
11. Recognize the symptoms of heatstroke and heat exhaustion.
12. Describe the first-aid treatment for heatstroke and heat exhaustion.
13. Describe the procedure for preparing and applying improvised splints for open or closed fractures.
14. Explain the procedure for rescuing a person in contact with an energized electrical circuit.
15. Explain the method for transporting an injured person using the fireman's lift.
16. Explain the reasons for maintaining good personal hygiene practices.
17. Explain the reasons for maintaining sanitary conditions in and around living and working spaces.
18. Describe the symptoms of sexually transmitted diseases.
19. Identify the ways of preventing sexually transmitted diseases.

In this chapter we will give you some guidelines on giving first aid in an emergency. It is not intended to make you an expert or even to qualify you in administering first aid. We will discuss why first aid is important and the results of properly administered first aid. We will also discuss the measures you should take for the treatment of shock, bleeding, burns, and fractures; methods of resuscitation; and methods of moving injured persons.

Personal hygiene is also important, not only to you, the individual, but to the entire ship's company. This chapter gives you points for maintaining cleanliness of the body, clothing, and bedding. We will also discuss the effects of sexually transmitted diseases.

These topics include what you should know and be able to demonstrate. You should supplement these knowledges with further study and training.

FIRST AID

First aid is the emergency care you give to sick or injured persons until competent medical care is available. An important aspect of first aid, in addition to knowing what to do for a victim, is knowing what not to do.

Your knowledge of first-aid measures and their proper application may mean the difference between life and death, between rapid recovery and long hospitalization, or between temporary disability and permanent injury.

PURPOSE AND LIMITATIONS

The objectives of first aid are to save life, prevent further injury, and limit infection. First aid is not a substitute, however, for proper medical treatment. Keep in mind the objectives of first aid. Everyone in the Navy must know when and how to apply first-aid measures and must be prepared to give assistance to persons injured in battle, collision, fire, and other mishaps that may occur.

In administering first aid, you have three primary tasks:

- Maintain breathing.
- Stop bleeding.
- Prevent or reduce shock.

The first step, of course, is to determine the victim's injuries. When you treat a victim, first consideration usually must be given to the most serious injury. In general, the order of treatment is to restore breathing, stop bleeding, and treat for shock.

Work quickly, but do not rush around frantically. Do not waste time looking for ready-made materials; do the best you can with whatever is at hand. Send for medical help as soon as possible.

GENERAL FIRST-AID RULES

Although each case involving injury or sickness presents its own special problems, the following general rules apply to practically all situations. Become familiar with the following basic rules before you go on to learn first-aid treatment for specific types of injuries:

1. Keep the victim lying down, head level with the body, until you have found out what kind of injury has occurred and how serious it is. If the victim shows one of the following difficulties, however, follow the rule given for that specific problem:

a. Vomiting or bleeding about the mouth and semiconsciousness: If the victim is in danger of sucking in blood, vomited matter, or water, place the victim on his or her side or back with the head turned to one side and lower than the feet.

b. Shortness of breath: If the victim has a chest injury or breathing difficulties, place the victim in a sitting or semisitting position.

c. Shock: If the victim is in shock, place the victim on his or her back with the head slightly lower than the feet. (Shock is explained later in this chapter.)

2. Move the victim no more than is absolutely necessary. To determine the extent of the victim's injuries, carefully rip or cut the clothing along the seams. Removal of clothing in the normal way may aggravate injuries, especially if fracture injuries are involved. Shoes may also be cut off to avoid causing pain or increasing an injury. When the clothing is removed, make sure the victim does not become chilled.

3. Keep the victim reassured and as comfortable as possible. If possible, do not allow the victim to see his or her injuries. The victim can endure pain and discomfort better if he or she is confident of your abilities.

4. Do not touch open wounds or burns with fingers or other objects except when sterile compresses or bandages are not available and it is absolutely necessary to stop severe bleeding.

5. Do not try to give an unconscious person any solid or liquid substance by mouth. The person may vomit and get some of the material into the lungs when he or she breathes, causing choking and possibly death.

6. If a bone is broken, or you suspect that one is broken, do not move the victim until you have immobilized the injured part. That may prove lifesaving in cases of severe bone fractures or spinal cord injuries, for the jagged bone may sever nerves and blood vessels, damage tissues, and increase shock. Of course, threat of fire, necessity to abandon ship, or other similar situations may require that you move the victim. But always keep in mind the principle that further damage could be done by moving the victim; always weigh the risk of moving the victim against other factors.

7. When transporting an injured person, always see that the litter is carried feet forward no matter what the injuries are. That will enable the rear bearer to observe the victim for any respiratory obstruction or stoppage of breathing.

8. Keep the injured person comfortably warm—warm enough to maintain normal body temperature.

Very serious and mutilating injuries may require heroic first-aid measures on your part. However, the greater the number of injuries, the more judgment and self-control you must exhibit to prevent yourself and well-intentioned bystanders from trying to do too much.

ARTIFICIAL VENTILATION

A person who has stopped breathing is not necessarily dead, but is in immediate critical danger.

Life depends on oxygen that is breathed into the lungs and then carried by the blood to every body cell. Since body cells cannot store oxygen, and the blood can hold only a limited amount (and only for a short time), death will surely result from continued lack of oxygen.

The heart may continue to beat and the blood may still be circulated to the body cells for some time after breathing has stopped. Since the blood will, for a short time, contain a small supply of oxygen, the body cells will not die immediately. Thus, for a very few minutes, there is some chance that the person's life may be saved. A person who has stopped breathing but who is still alive is said to be in a state of respiratory failure. The first-aid treatment for respiratory failure is called artificial ventilation.

The purpose of artificial ventilation is to provide a method of air exchange until natural breathing is reestablished. Artificial ventilation should be given only when natural breathing has stopped; it must NEVER be given to any person who is still breathing. Do not assume breathing has stopped merely because a person is unconscious, or because a person has been rescued from the water, from poisonous gas, or from contact with an electrical wire. Remember, DO NOT GIVE ARTIFICIAL VENTILATION TO A PERSON WHO IS BREATHING NATURALLY. If the victim does not begin spontaneous breathing after using the head or jaw tilt techniques (discussed later) to open the airway, artificial ventilation must be attempted immediately. If a blocked airway prevents ventilation, one of the "thrust" methods (discussed later) to clear the airway must be performed, followed by another attempt at artificial ventilation.

Mouth to Mouth

To perform mouth-to-mouth ventilation, clear the victim's mouth of obstructions (false teeth and foreign matter), place the heel of one hand on the victim's forehead, and use the other hand placed under the chin to tilt back the head to open the airway. Using the thumb and index finger, pinch the nostrils shut. Take a deep breath, cover the victim's mouth with your own, and blow. Then remove your mouth from the victim's to allow him or her to exhale. Observe the victim's chest for movement. If the victim has not started to breathe normally, start artificial ventilation with four quick ventilations in succession, allowing the lungs to only partially inflate. If the victim still does not respond, then you must fully inflate the victim's lungs at the rate of 12 to 15 ventilations per minute, or one breath every 5 seconds.

NOTE: The previous method of placing one hand under the victim's neck is no longer taught. It is believed that this method could possibly aggravate neck or spinal injuries.

Mouth to Nose

Mouth-to-nose ventilation is effective when the victim has extensive facial or dental injuries or is very young, as it permits an effective air seal.

To administer this method, place the heel of one hand on the victim's forehead and use the other hand to lift the jaw. After sealing the victim's lips, take a deep breath, place your lips over the victim's nose, and blow. Observe the chest for movement and place your ear next to the victim's nose to listen for, or feel, air exchange. Again, you must continue your efforts at the rate of 12 to 15 ventilations per minute, or one breath every 5 seconds, until the victim can breathe without assistance.

NOTE: Sometimes during artificial ventilation air enters the stomach instead of the lungs. This condition is called gastric distention. It can be relieved by moderate pressure exerted with a flat hand between the navel and the rib cage. Before applying pressure, turn the victim's head to the side to prevent him or her from choking on stomach contents that are often brought up during the process.

Back Pressure/Arm Lift

The back pressure/arm lift method is an alternate technique used when other methods are not possible. Place the victim on the stomach, face to one side, neck hyperextended, with hands under the head. Quickly clear the mouth of any foreign matter. Kneel at the victim's head and place your hands on the victim's back so that the heels of the hands lie just below a line between the armpits, with thumbs touching and fingers extending downward and outward. Rock forward, keeping your arms straight, and exert pressure almost directly downward on the victim's back, forcing air out of the lungs. Then rock backward, releasing the pressure and grasping the arms just above the elbows. Continue to rock backward, pulling the arms upward and inward (toward the head) until resistance and tension in the victim's shoulders are noted. That expands the chest, causing active intake of air (inspiration). Rock forward and release the victim's arms. That causes passive exiting of air (expiration). Repeat the cycle of **PRESS, RELEASE, LIFT, and RELEASE** 10 to 12 times a minute until the victim can breathe naturally.

CARDIAC ARREST AND CARDIOPULMONARY RESUSCITATION

Cardiac arrest is the complete stoppage of heart function. If the victim is to live, action must be taken immediately to restore heart function.

In this situation, the immediate administration of cardiopulmonary resuscitation (CPR) by a rescuer using correct procedures greatly increases the chances of a victim's survival. CPR consists of external heart compression and artificial ventilation. This compression is performed on the outside of the chest, and the lungs are ventilated either by mouth-to-mouth or mouth-to-nose techniques. To be effective, CPR must be started within 4 minutes of the onset of cardiac arrest. The victim should be lying on a firm surface.

CAUTION

CPR should not be attempted by a rescuer who has not been properly trained. (To learn CPR, you should take an approved course from a qualified CPR instructor.) Improperly done, CPR can cause serious damage. Therefore, it is NEVER practiced on a healthy individual for training purposes; a training aid is used instead.

One-Rescuer Technique

In an unwitnessed cardiac arrest, the rescuer must not assume that an arrest has occurred solely because the victim is lying on the floor and appears to be unconscious. First, try to arouse the victim. Shake the victim's shoulders and shout to try to obtain a response. Lie the unconscious victim on her or his back. Kneel at the shoulders and establish an open airway, using the procedures outlined previously. Check for breathing by looking, listening, and feeling. Look to see if the chest is rising and falling. Listen for air coming from the mouth. Check close to the victim's mouth and feel for air coming out. If there is no breathing from the victim, seal the nose, take a deep breath and blow four quick breaths into the victim without allowing time for the lungs to fully deflate. Quickly remove your mouth and allow the victim to exhale by himself or herself. Check



Figure 20-1.—Feeling for the carotid pulse.

the carotid pulse as shown in figure 20-1. If no pulse is present, start CPR immediately.

To start external cardiac compression, place the victim on his or her back, establish an open airway, and kneel at right angles to the victim's body. Then, locate the victim's sternum (breastbone). You have a choice of two methods of doing that. One method is to bare the chest and locate the sternum by drawing an imaginary line from one nipple to the other to identify the proper area of the sternum, which is darkened in figure 20-2. The other method is to locate the lower tip of the sternum with the index and middle fingers, placing the heels of your hands above your fingers in the darkened area.

There is a small piece of cartilage at the lower end of the sternum (fig. 20-2). A fracture of this area can damage the liver, causing hemorrhage (heavy bleeding).

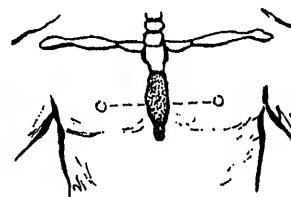


Figure 20-2.—Locating the sternum.

and death. When you place the heels of your hands on the victim's chest, stay above the tip of the sternum.

Place the heel of one hand directly on the sternum, and the heel of the other on top of the first. Figure 20-3, view A, shows this technique. Interlock your fingers, and **KEEP THEM OFF THE VICTIM'S CHEST!**

Lean or rock forward with elbows locked, and apply vertical pressure to depress the sternum (adult) 1 1/2 to 2 inches. Figure 20-3, view B, depicts this action. Then release the pressure, keeping the hands in place. Administer 60 to 80 compressions per minute.

You will feel less fatigue if you use the proper technique, and a more effective compression will result. Ineffective compression occurs when the elbows are not locked, the rescuer is not directly over the sternum, or the hands are improperly placed on the sternum.



Figure 20-3.—Position for cardiac compression.

When one rescuer performs CPR, as shown in figure 20-4, the ratio of compressions to ventilations is 15 to 2. After 15 compressions you must give the victim 2 ventilations. This ratio must continue for four full cycles. Then check for pulse and breathing. If there are still no signs of recovery, continue CPR until the victim can breathe unassisted or you are relieved by medical personnel.

Before reviewing the next technique, let's go over the steps to take in an unwitnessed cardiac arrest involving one rescuer.

1. Determine whether the victim is conscious.
2. Check the vital signs.
3. Ventilate four times. (You may have to remove an airway obstruction at this time.)
4. Again check the vital signs; if none,
 - a. begin compression-ventilation rate of 15 to 2 for four complete cycles;
 - b. check pulse, breathing, pupils; if no change,
 - c. continue compression-ventilation rate of 15 to 2 until victim is responsive or you are relieved by medical personnel.

Two-Rescuer Technique

If two people trained in CPR are on the scene, one must perform compressions while the other performs artificial ventilation. The ratio for two-person CPR is 5 compressions to 1 ventilation. One rescuer is positioned



Figure 20-4.—One-rescuer CPR technique.

at the chest area and the other beside the victim's head. The rescuers should be on opposite sides of the victim.

To avoid confusion, one rescuer must be designated the leader. The leader must make the preliminary checks of the victim's vital signs and perform the initial four ventilations. The second rescuer will perform the compressions.

When CPR is started, the compressions should be given in a constant, methodical rhythm. The rescuer giving the compressions counts them out loud. As the fifth compression is released, the other rescuer ventilates the victim. Do not stop the compressions while ventilation is being given.

AIRWAY BLOCKAGE

Obstruction in the upper airway (throat) is often caused by attempting to chew food and talk at the same time. One of the most reliable indications of an airway obstruction is the inability of the victim to speak. Other indicators are the victim's grasping or pointing at his or her throat, exaggerated breathing efforts, and the skin



Figure 20-5.—Position for standing abdominal thrust.

turning a bluish color. Your first action upon encountering a victim with this problem is to clear the mouth of any food particles, foreign objects, or loose dentures. If that is not effective, you should use one of the following procedures.

Standing Abdominal Thrust

Stand behind the victim and wrap your arms around the victim's waist as illustrated in figure 20-5. Grasp your wrist and place the thumb side of your fist against the victim's abdomen, above the navel and just below the rib cage (fig. 20-6). Give four quick upward thrusts to the victim. The obstruction should pop out like a champagne cork. If unsuccessful, repeat until the obstruction is dislodged.

Reclining Abdominal Thrust

Position yourself for the thrust by either straddling the victim at the hips, straddling one leg, or kneeling at the victim's hips. Place your hands one on top of the other in the area between the lower end of the sternum and the navel, and give four quick upward thrusts into the abdomen as illustrated in figure 20-7.

Standing Chest Thrust

Bring your arms under the arms of the victim and encircle the lower chest as shown in figure 20-8.

Grasp your wrist, keeping the thumb side close to the victim's chest. Keep your fist on the middle, not the lower part, of the sternum. Press the chest with a sharp, backward thrust.

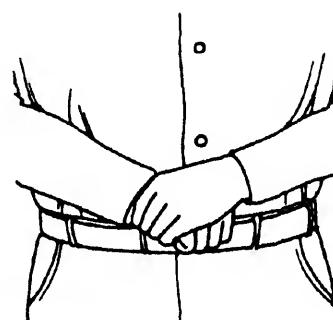


Figure 20-6.—Correct hand positioning.



Figure 20-7.—Position for reclining abdominal thrust.

Reclining Chest Thrust

Kneel at either side of the victim, place one hand on either side of the chest in line with the armpits, and wrap your fingers around each side of the chest. Give four quick downward thrusts with the arms, and an inward thrust toward the sternum with the hands (fig. 20-9).

HEMORRHAGE

Blood is circulated throughout the body by three different kinds of blood vessels: arteries, veins, and capillaries. Arteries are large vessels that carry the blood away from the heart; veins are large vessels that carry the blood back to the heart; and capillaries form a



Figure 20-8.—Position for standing chest thrust.

connecting network of smaller vessels between the arteries and the veins.

Hemorrhage (escape of blood) occurs whenever there is a break in the wall of one or more blood vessels. In most small cuts, only capillaries are injured. Deeper wounds result in injury to veins or arteries. Bleeding that is severe enough to endanger life seldom occurs except when arteries or veins are cut.

The average adult body contains about 5 quarts (4.75 liters) of blood. One pint of blood can usually be lost without harmful effect—in fact, that is the amount usually given by blood donors. However, the loss of 2 pints (0.95 liter) will usually cause shock, and shock becomes greater and greater as the amount of blood loss increases. (Shock will be discussed later in this chapter.) If half the blood in the body is lost, death almost always results.

Capillary blood is usually brick red in color. If capillaries are cut, the blood oozes out slowly. Blood from the veins is dark red. If a vein is cut, the blood escapes in a steady, even flow. If an artery near the surface is cut, the blood will gush out in spurts that are synchronized with the heartbeats; but if the cut artery is deeply buried, the bleeding will appear to be a steady stream. Arterial blood is usually bright red in color.

In actual practice, you might find it difficult to decide whether bleeding was from a vein or an artery; but the distinction is not usually important. A person can bleed to death quickly from a cut artery; prolonged bleeding from any large cut can, of course, have the same effect. The important thing to know is that ALL bleeding must be controlled as quickly as possible.

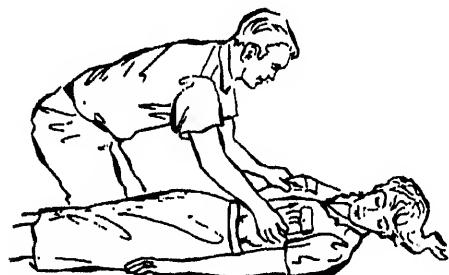


Figure 20-9.—Position for reclining chest thrust.

Methods of Controlling Bleeding

The only way to stop serious bleeding is by the application of pressure. In practically all cases, bleeding can be stopped if PRESSURE is applied DIRECTLY TO THE WOUND. If direct pressure does not stop the bleeding, pressure should be applied at the appropriate pressure point. In those very rare cases where bleeding is so severe that it cannot be controlled by either of these methods, pressure can be applied by a tight constricting band called a tourniquet. The actual procedures you should use to stop bleeding are detailed in the following paragraphs.

DIRECT PRESSURE.—In almost every case, bleeding can be stopped by the application of pressure directly on the wound. Place a dressing (sterile or clean, if possible) over the wound and firmly fasten it in position with a bandage. If bleeding does not stop, firmly secure another dressing over the first, or apply direct pressure with your hand to the dressing (fig. 20-10).

In cases of severe hemorrhage, do not worry too much about the danger of infection. The basic problem is to stop the flow of blood. If no material is available, simply place your hand firmly on the wound. Remember, DIRECT PRESSURE is the first method to use when you are trying to control hemorrhage.

PRESSURE POINTS.—Bleeding from a cut artery or vein may often be controlled by applying pressure to the appropriate pressure point. A pressure point is a place where the main artery to the injured part lies near the skin surface and over a bone. Pressure at such a point is applied with the fingers (digital pressure) or with the hand; no first-aid materials are required. The object of the pressure is to compress the artery against the bone, thus shutting off the flow of blood from the heart to the wound.

There are 11 principal points on each side of the body where hand or finger pressure can be used to stop hemorrhage. Figure 20-11 shows these points.

You should memorize these pressure points so that you will know immediately which point to use for hemorrhage from a particular part of the body. In the discussion of these pressure points, did you notice the general principle by which you can determine the proper point to use? The correct pressure point is the one that is (1) NEAREST THE WOUND and (2) BETWEEN THE WOUND AND THE MAIN PART OF THE BODY, or BETWEEN THE WOUND AND THE HEART.

Applying finger pressure is very tiring, and it can seldom be maintained for more than 15 minutes. Pressure points are recommended for use while direct pressure is being applied to a serious wound. While pressure is being applied at the appropriate pressure point, an assistant can bandage the wound (or wounds). If available, a battle dressing should be used. After opening the dressing, be careful not to contaminate it. Place the compress portion over the wound, then bind it tightly in place with the attached straps (fig. 20-12). If bleeding continues to be severe even after direct pressure and pressure points have been used, you may have to apply a tourniquet.

USE OF THE TOURNIQUET.—A tourniquet is a constricting band that is used to cut off the supply of blood to an injured limb. It cannot be used to control bleeding from the head, neck, or body, since its use in these locations would result in greater injury or death. A tourniquet should be used ONLY if the control of hemorrhage by other means proves to be impossible.

Basically, a tourniquet consists of a pad, a band, and a device for tightening the band so that the blood vessels will be compressed. There are several different kinds of ready-made tourniquets. A variety of materials can be used to improvise tourniquets. Any round, smooth pressure object may be used for the pad—a compress, a roller bandage, a stone, a rifle shell—and any long, flat material may be used as the band. However, the band must be flat; belts, stockings, flat strips of rubber, or neckerchiefs can be used; but rope, wire, string, or very narrow pieces of cloth should not be used because they will cut into the flesh. A short stick may be used to twist the band, thus tightening the tourniquet.

A tourniquet must always be applied ABOVE the wound—that is, toward the body—and it must be applied as close to the wound as practicable.

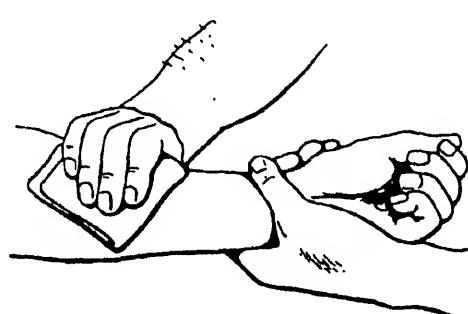


Figure 20-10.—Direct pressure.

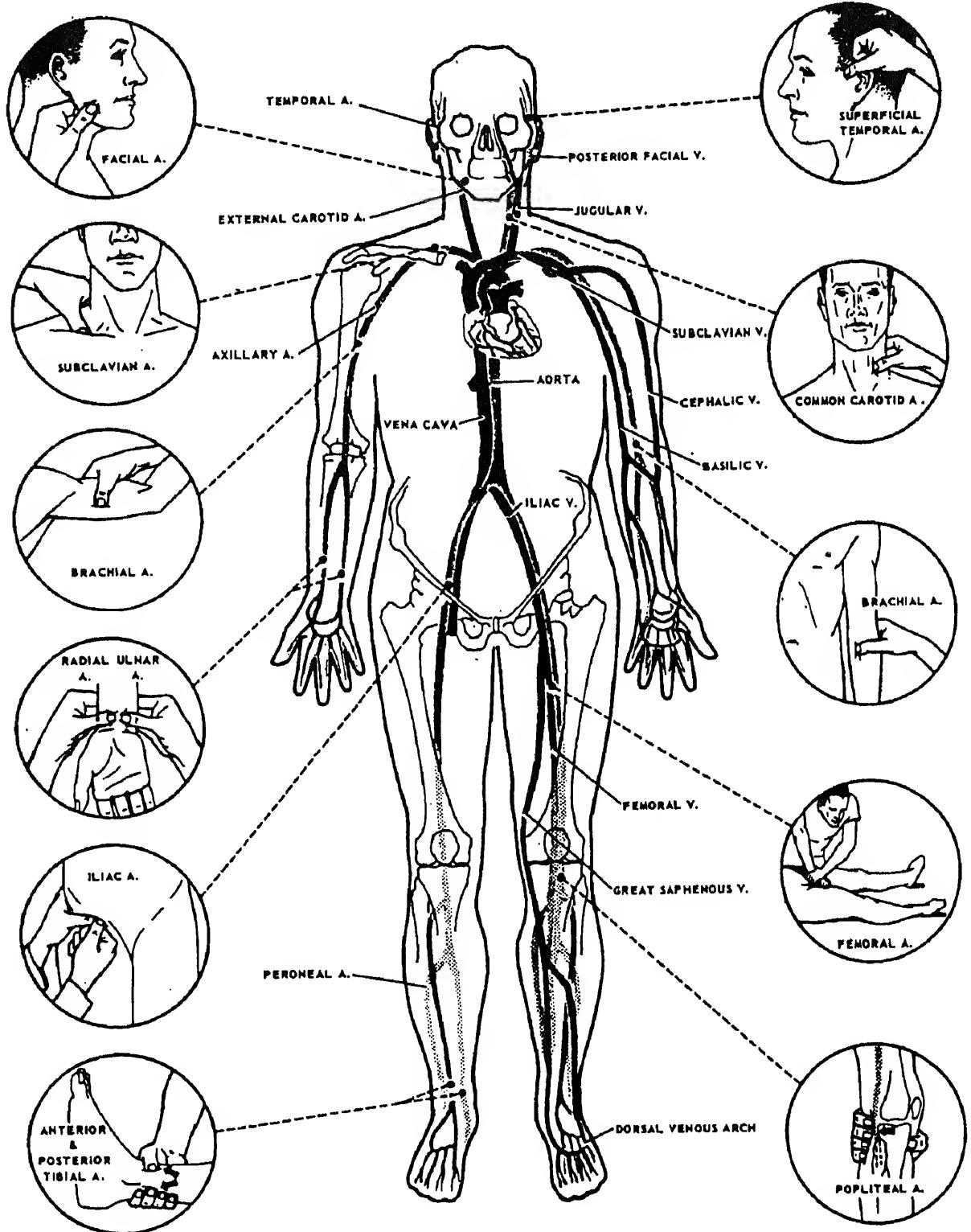


Figure 20-11.—Pressure points for control of bleeding.

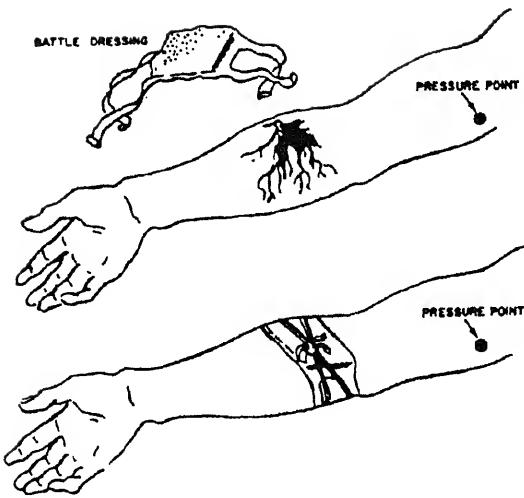


Figure 20-12.—Battle dressing.

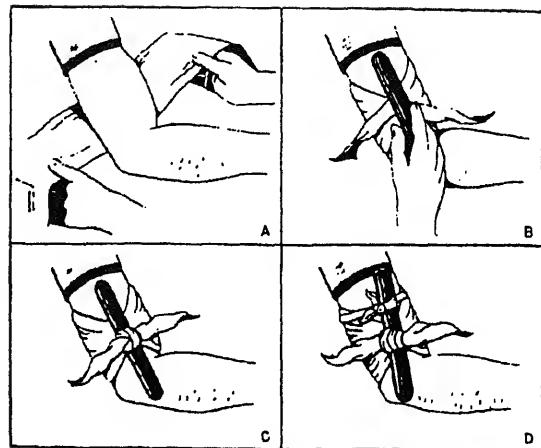


Figure 20-13.—Applying a tourniquet.

The best object to be used for the pad is either a pad, compress, or similar pressure object. The pad goes under the band. It must be placed directly over the artery, or it will actually decrease the pressure on the artery and thus allow greater flow of blood. If a tourniquet placed over a pressure object does not stop the bleeding, the pressure object is probably in the wrong place. If that occurs, shift the object around until the tourniquet, when tightened, will control the bleeding. If no suitable pressure object is available, use the tourniquet without it.

To apply an emergency tourniquet made from something like a neckerchief, wrap the material (which is a minimum of 2 inches wide) at least twice around the limb and tie an overhand knot; place a short stick on the overhand knot and tie a square knot over it. Then twist the stick rapidly to tighten the tourniquet. The stick may be tied in place with another strip of material. Figure 20-13 shows how to apply a tourniquet.

To be effective, a tourniquet must be tight enough to stop the blood flowing to the limb. If the pressure from the tourniquet is less than the arterial pressure, arterial bleeding will continue. Also, insufficient tourniquet pressure may actually increase the amount of bleeding from the veins. So be sure to draw the tourniquet tight enough to stop the bleeding. However, do not make it any tighter than necessary.

After you have brought the bleeding under control with the tourniquet, apply a sterile compress or dressing to the wound, and fasten it in position with a bandage.

CAUTION

Never put on a tourniquet unless the hemorrhage is so severe that it cannot be controlled in any other way; by the time the tourniquet is put on, therefore, the victim has already lost a considerable amount of blood. Once a tourniquet has been applied, it should be released only by medical personnel.

Following are points to remember about using a tourniquet:

- Do not use a tourniquet unless you cannot control the bleeding by any other means.
- Do not use a tourniquet for bleeding from the head, face, neck, or body. Use it only on the limbs.
- Always apply a tourniquet **ABOVE THE WOUND**, and as close to the wound as possible.
- Be sure you draw the tourniquet tight enough to stop the bleeding, but do not make it any tighter than necessary.
- Do not loosen a tourniquet after it has been applied.

- Do not cover a tourniquet with a dressing. If it is necessary to cover the injured person in some way, make sure all other people concerned with the case know about the tourniquet. Using crayon, skin pencil, or blood, make a large *T* on the victim's forehead or on a medical tag attached to the wrist, and note the time the tourniquet was applied.

BATTLE DRESSINGS

A battle dressing is a combination compress and bandage, in which a sterile gauze pad is fastened to a gauze, muslin, or adhesive bandage. Most Navy first-aid kits contain both large and small battle dressings. Battle dressings will also be supplied at battle dressing stations located throughout the ship. Any part of a dressing that is to come into direct contact with a wound should be absolutely sterile. The dressing you find in Navy first-aid kits have been sterilized. Never touch a battle dressing with your fingers, clothing, or any other unsterile object.

When applying a battle dressing, make sure the dressing is the proper size that covers the wound completely. Some wounds, such as protruding abdominal wounds, will require the dressing to be moistened in sterile water. Battle dressing should be applied in a manner that will not allow the dressing to move or slip off the wounded area. Once a battle dressing has been applied to a wound, it should not be removed except by medical personnel. Each ship in the Navy will hold periodic training on first aid. There will always be new and updated techniques on how to administer first-aid procedures, including how to apply battle dressings. You should pay particular attention to these training sessions and learn as much as you possibly can.

SHOCK

If you've ever hit your finger with a hammer and felt—in addition to the pain—weak, dizzy, and nauseous, then you have experienced a mild form of shock. In this instance, the symptoms appeared immediately after the injury, but they may not show up for several hours.

Shock is a condition in which blood circulation is seriously disturbed. Crushed or fractured bones, burns, prolonged bleeding, and asphyxia all cause shock. It may be slight or it may be severe enough to cause death. Because all injuries will result in some form of shock, you must learn its symptoms and know how to treat the victim.

How To Recognize Shock

A person who is going into shock may show quite a few signs or symptoms, some of which are indicated in figure 20-14 and are discussed in the following paragraphs. Remember, however, that signs of shock do not always appear at the time of the injury; indeed, in many very serious cases they may not appear until hours later.

The symptoms of a person suffering from shock are caused, directly or indirectly, by the disturbance of the circulation of the blood. The pulse is weak and rapid. Breathing is likely to be shallow, rapid, and irregular, because the poor circulation of the blood affects the breathing center in the brain. The temperature near the surface of the body is lowered because of the poor blood flow; so the face, arms, and legs feel cold to the touch. Sweating is likely to be very noticeable. A person in shock is usually very pale, but in some cases the skin may have a bluish or reddish color. In the care of victims with dark skin, you may have to rely primarily on the color of the mucous membranes on the inside of the mouth or under the eyelid or under the nail bed. A person in or going into shock has a bluish color to these membranes instead of a healthy pink. The pupils of the eyes are usually dilated (enlarged).

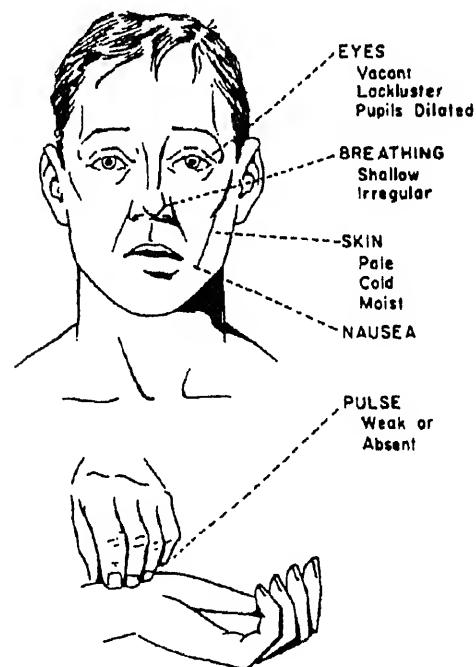


Figure 20-14.—Symptoms of shock.

A conscious person in shock may complain of thirst and have a feeling of weakness, faintness, or dizziness. The victim may feel nauseous, restless, frightened, and/or anxious. As shock deepens, these signs gradually disappear and the victim becomes less and less responsive to what is going on. Even pain may not arouse the shock victim. Finally, the victim may become unconscious.

You will not likely see all the symptoms of shock in any one case. Some of them may appear only in late stages of shock, when the disturbance of the blood flow has become so great that the person's life is in serious danger. Sometimes the signs of shock may be disguised by other signs of the injury. You must know what symptoms indicate the presence of shock, but do not ever wait for symptoms to develop before beginning the treatment for shock. Remember, **EVERY SERIOUSLY INJURED PERSON IS LIKELY TO DEVELOP SERIOUS SHOCK.**

Prevention and Treatment of Shock

You should begin treatment for shock as soon as possible. Prompt treatment may prevent the occurrence of shock or, if it has already developed, prevent its reaching a critical point. Keep the victim lying down and warm. If conscious, the victim should be encouraged and assured that expert medical help will arrive soon.

KEEP AN INJURED PERSON WARM ENOUGH FOR COMFORT, BUT DO NOT LET THE VICTIM BECOME OVERHEATED.

The best position to use for the prevention or treatment of shock is one that encourages the flow of blood to the brain. If possible to place the injured person on his or her back on a bed, a cot, or a stretcher, you can raise the lower end of the support about 12 inches so that the feet will be higher than the head (fig. 20-15). If the circumstances of the mishap make it impossible to do that, it might still be possible for you to raise the feet and legs enough to help the blood flow to the brain. Sometimes it is possible to take advantage of a natural slope of ground and place the victim so that the head is lower than the feet.

In every case, of course, you will have to consider what type of injury is present before you can decide on the best position. For example, a person with a chest wound may have so much trouble breathing that you will have to raise the head slightly. If the face is flushed rather than pale, or if you have any reason to suspect a head injury, do not raise the feet; instead, you should keep the head level with or slightly higher than the feet.



Figure 20-15.—Position for treatment of shock.

If the person has broken bones, you will have to judge what position would be best both for the fractures and for shock. A fractured spine must be immobilized before the victim is moved at all, if further injuries are to be avoided. If you have any doubts about the correct position to use, have the victim lie flat on his or her back. **THE BASIC POSITION FOR TREATING SHOCK IS ONE IN WHICH THE HEAD IS LOWER THAN THE FEET.** Do the best you can, under the particular circumstances, to get the injured person into this position. In any case, never let a seriously injured person sit, stand, or walk around.

Liquids should be administered sparingly, and not at all if medical attention will be available within a short time. If necessary, small amounts of warm water, tea, or coffee may be given to a victim who is conscious. Persons having serious burns are an exception. Burn victims require large amounts of fluids. Water, tea, fruit juices, and sugar water may be given freely to a victim who is conscious, able to swallow, and has no internal injuries. Slightly salted water is also beneficial. Alcohol must **NEVER** be given to a person in shock.

An injured person may or may not be in pain. The amount of pain felt depends in part on the person's physical condition and the type of injury. Extreme pain, if not relieved, can increase the degree of shock. Make the victim as comfortable as possible. Fractures should be immobilized and supported. Immobilization greatly reduces, and sometimes eliminates, pain. Normally, you should not administer drugs, but aspirin may be given for mild pain.

Heat is important in the treatment of shock to the extent that the injured person's body heat must be conserved. Exposure to cold, with resulting loss of body heat, can cause shock to develop or to become worse. You will have to judge the amount of covering to use by considering the weather and the general circumstances of the accident. Often a light covering will be enough to keep the casualty comfortable. Wet clothing should be removed and dry covering provided, even on a hot day. Use blankets or any dry material to conserve body heat. Artificial means of warming (hot water bottles, heated

bricks, heated sand) should not ordinarily be used. Artificial heat may cause loss of body fluids (by sweating), and it brings the blood closer to the surface, thus defeating the body's own efforts to supply blood to the vital organs and to the brain. Also, the warming agent may burn the victim.

BURNS

The seriousness of a burn depends on two factors: the extent of the burned area and the depth of the burn. Shock can be expected from burns involving 15 percent or more of the body. Burns involving 20 percent endanger life. Without adequate treatment, burns of over 30 percent are usually fatal. The depth of the injury determines whether it is a first-, second-, or third-degree burn.

First-degree burns are mildest. Symptoms are slight pain, redness, tenderness, and increased temperature of the affected area.

Second-degree burns are more serious. The inner skin may be damaged, resulting in blistering, severe pain, some dehydration, and possible shock.

Third-degree burns are worst of all. The skin is destroyed, and possibly also the tissue and muscle beneath it. The skin may be charred, or it may be white and lifeless (from scalds). After the initial injury, pain may be less severe because of destroyed nerve ends. There may be chilling of the body. Some form of shock will result.

Probably the most important aspect is the extent of the burned area. A first-degree burn covering a large area could be more serious than a small third-degree burn. A sunburn, for example, ranging from mild to serious, is easily obtained, particularly if you are not accustomed to the exposure. If you were to fall asleep while sunbathing, second- or even third-degree burns of a possibly fatal nature could result.

The most effective immediate treatment of burns and of pain, if the burn area covers less than 20 percent of the body, is to immerse the burned area in cold water, or apply cold compresses if immersion is impracticable. Cold water not only minimizes pain, but also reduces the burning effect in the deeper layers of the skin. Gently pat dry the area with lint-free cloth or gauze. If the burn area covers more than 20 percent of the body, sterile, dry bandages should be applied. Aspirin is also effective for the relief of pain. Continue treatment until no pain is felt when the burned area is exposed to the air.

Burn victims require large amounts of water, which should be slightly salted. Because of the nature of the injury, most burns are sterile. The best treatment for uninfected burns, therefore, is merely to protect the area by covering it with the cleanest (preferably sterile) dressing available. Never apply ointments to a burn, nor use petrolatum gauze.

Do not attempt to break blisters or to remove shreds of tissue or adhered particles of charred clothing. Never apply a greasy substance (butter, lard, or Vaseline), antiseptic preparations, or ointments. These may cause further complications and interfere with later treatment by medical personnel.

HEATSTROKE

Sunstroke is more accurately called heatstroke since it is not necessary for a person to be exposed to the sun for this condition to develop. It is a less common but far more serious condition than heat exhaustion, since it carries a 20-percent mortality rate. The more important feature of heatstroke is the extremely high body temperature (105°F, 41°C, or higher) that accompanies it. In heatstroke, the victim has a breakdown of the sweating mechanism and is unable to eliminate excessive body heat built up while exercising. If the body temperature rises too high, the brain, kidneys, and liver may be permanently damaged.

Sometimes the victim may have preliminary symptoms such as headache, nausea, dizziness, or weakness. Breathing will be deep and rapid at first, later shallow and almost absent. Usually the victim will be flushed, very dry, and very hot. The pupils will be constricted (pinpoint) and the pulse fast and strong. Figure 20-16 compares these symptoms with those of heat exhaustion.

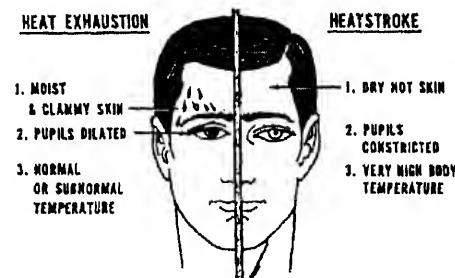


Figure 20-16.—Symptoms of heatstroke and heat exhaustion.

When you provide first aid for heatstroke, remember that this is a true life-and-death emergency. The longer the victim remains overheated, the higher the chances of irreversible body damage occurring or even death. First-aid treatment for heatstroke is designed to reduce body heat.

Reduce body heat immediately by dousing the body with cold water, or applying wet, cold towels to the whole body. Move the victim to the coolest possible place and remove as much clothing as possible. Maintain an open airway. Place the victim on his or her back, with the head and shoulders slightly raised. If cold packs are available, place them under the arms, around the neck, at the ankles, and on the groin. Expose the victim to a fan or air-conditioner since drafts will promote cooling. Immersing the victim in a cold water bath is also effective. Give the victim (if conscious) cool water to drink. Do not give any hot drinks or stimulants. Get the victim to a medical facility as soon as possible. Cooling measures must be continued while the victim is being transported.

HEAT EXHAUSTION

Heat exhaustion (heat prostration or heat collapse) is the most common condition caused by working or exercising in hot spaces. Heat exhaustion produces a serious disruption of blood flow to the brain, heart, and lungs. This disruption of blood flow causes the victim to experience weakness, dizziness, headache, loss of appetite, and nausea.

Signs and symptoms of heat exhaustion are similar to those of shock: the victim will appear ashen gray; the skin cold, moist, and clammy; and the pupils of the eyes may be dilated (enlarged). The vital signs (blood pressure, temperature, pulse, and respiration) usually are normal; however, the victim may have a weak pulse together with rapid and shallow breathing. Body temperature may be below normal.

You should treat heat exhaustion victims as if they were in shock. Loosen the clothing, apply cool wet cloths, move the victim to either a cool or an air-conditioned area, and fan the victim. Do not allow the person to become chilled. If the victim is conscious, administer a solution of 1 teaspoon of salt dissolved in a quart of cool water. If the victim vomits, don't give any more fluids. Transport the victim to a medical facility as soon as possible.

FRACTURES

Simply put, a fracture is a broken bone. The severity of the injury depends upon the part of the body affected, the type of fracture, and the amount of tissue damaged.

Classification

Fractures may be classified in several ways, but in general, they are either closed or open. A closed fracture is one in which the skin remains intact. An open fracture is one in which the bone protrudes from the skin. These fractures are illustrated in figure 20-17.

Symptoms

It is not always readily apparent that a fracture has occurred. However, if the victim has been involved in some form of violence, you may suspect that one or more bones have been broken. The victim may even have heard the bone snap. Some symptoms of a fracture are as follows:

- Pain and tenderness
- Inability to use the part
- Creaking or crackling

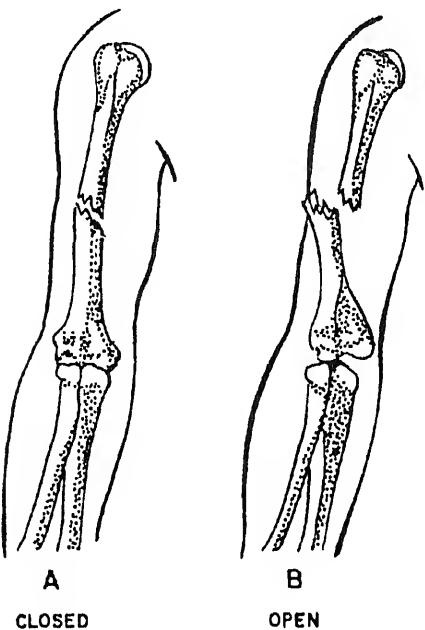


Figure 20-17.—Types of fractures.

- Swelling
- Deformity
- Discoloration of skin

Treatment

If you are required to give first aid to a person who has suffered a fracture, you should follow these general rules:

1. If there is any possibility that a fracture has been sustained, treat the injury as a fracture.
2. Get medical aid at the first possible opportunity.
All fractures require medical treatment.
3. Do not move the victim until splints have been applied to the injured parts, unless the victim's life is in danger.
4. Treat for shock.
5. Do not attempt to locate a fracture by grating the ends of the bone together.
6. Do not attempt to set a broken bone.
7. When a long bone in the arm or leg is fractured, the limb should be carefully straightened so that splints can be applied. Pulling gently with your hands in the long axis of the limb is permissible, and it may be all that is necessary to get the limb back into position.
8. Apply splints. Emergency splinting may be placed over the clothing if the victim will be seen very soon by a medical officer or if the victim will be transported for a short distance. Otherwise it is best to remove just enough clothing so you can apply well-padded splints directly to the injured part. If you decide to remove clothing over the injured part, cut the clothing or rip it along the seams. In any case, BE CAREFUL! Rough handling of the victim may convert a closed fracture into an open fracture. That could increase the severity of shock and cause extensive damage to the blood vessels, nerves, muscles, and other tissues around the broken bone.

If the fracture is open, you must treat the wound before you can deal with the fracture. Bleeding from the wound may be quite serious. Most bleeding can be stopped by direct pressure on the wound or by finger pressure at the appropriate point. If, after your best

tourniquet; then treat the fracture.

Use of Splints

An essential part of the first-aid treatment for fractures consists of immobilizing the injured part with splints so that the sharp ends of broken bones will not move around and cause further damage to nerves, blood vessels, or vital organs. Splints are also used to immobilize severely injured joints or muscles and to prevent the enlargement of extensive wounds. You must have a general understanding of the use of splints.

In an emergency, almost any firm object or material will serve as a splint. Such things as umbrellas, canes, swords, rifles, tent pegs, laths, sticks, oars, paddles, spars, wire, leather, boards, pillows, heavy clothing, corrugated cardboard, and folded newspapers can be used as splints. A fractured leg may sometimes be splinted by fastening it securely to the uninjured leg.

Splints, whether ready-made or improvised, must fulfill certain requirements. They should be light in weight, but they must be strong and fairly rigid. They should be long enough to reach the joints above and below the fracture. Splints should be wide enough so that the bandages that are used to hold them in place will not pinch the injured part. Splints must be well padded on the sides that touch the body; if they are not properly padded, they will not fit well and will not adequately immobilize the injured part. If you have to improvise the padding for a splint, you can use articles of clothing, bandages, cotton, blankets, or any other soft material. If the victim is wearing heavy clothes, you may be able to apply the splint on the outside, thus allowing the clothing to serve as at least part of the required padding.

Although splints should be applied snugly, they should NEVER be tight enough to interfere with the circulation of the blood. When applying splints to an arm or a leg, try to leave the fingers or toes exposed. If the tips of the fingers or toes become blue or cold, you will know that the splints or bandages are too tight. You should examine a splinted part approximately every half hour, and loosen the fastenings if the circulation appears to be cut off. Remember that any injured part is likely to swell, and splints or bandages that are all right when applied may be too tight later.

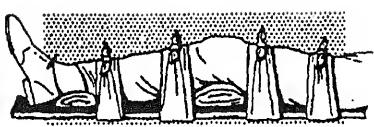


Figure 20-18.—Splinting.

Figure 20-18 illustrates a method of immobilizing the leg of a person with a broken kneecap. To secure the limb to the splint, belts, neckerchiefs, rope, or any suitable material may be used. If possible, tie the limb at two places above and two places below the break.

Leave the treatment of other types of fractures, such as jaw, ribs, spine, to medical personnel. Never attempt to move a person who is thought to have a fractured



Figure 20-19.—Fireman's carry.

spine or neck. To do so could cause permanent paralysis. Do not attempt to reset bones.

RESCUE PROCEDURES

There are many ways to move victims. The method used depends on several factors: where the victim is located and where the victim is to be taken, assistance available, equipment on hand, and so forth. If available, litters or stretchers should be used.

If no assistance is at hand, there are several methods by which you can move a victim alone. One method is simply to pick up and carry the victim in your arms, but it can be quite a task if the victim weighs more than you. If a blanket is handy, the victim can be placed upon it and dragged. Two other means are the fireman's carry (fig. 20-19) and the tied-hands crawl (fig. 20-20).

One of the easiest ways to carry an unconscious person is by the fireman's lift, also called the fireman's carry. Figure 20-19 shows the procedure.

1. Place the victim face down, as shown in view A. Kneel on one knee at the head, facing the victim. Pass your hands under the armpits.
2. Raise the victim as shown in view B. Take a better hold across the back.
3. Raise the victim to a standing position and stick your right leg between the victim's legs, as shown in view C. Grasp the victim's right wrist in your left hand and swing the arm around the back of your neck and down your left shoulder.
4. Stoop quickly and pull the victim across your shoulders and, at the same time, put your right arm between the victim's legs, as shown in view D.

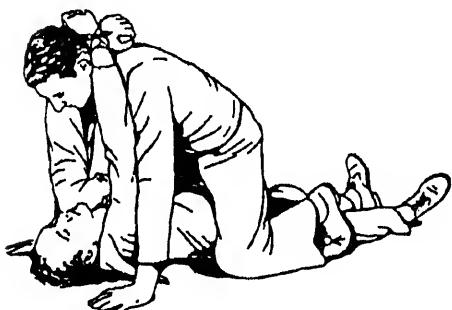


Figure 20-20.—Tied-hands crawl.

5. Grasp the victim's right wrist with your right hand and straighten up, as shown in view E.

The procedure for lowering the victim to the deck is shown in views F and G.

The tied-hands crawl, shown in figure 20-20, may be used to drag an unconscious person for a short distance; it is particularly useful when you must crawl underneath a low structure.

Rescue From Electrical Contact

The rescuing of a person who has received an electric shock is likely to be difficult and dangerous. Extreme caution must be used, or the rescuer may also be electrocuted.

YOU MUST NOT TOUCH THE VICTIM'S BODY, THE WIRE, OR ANY OTHER OBJECT THAT MAY BE CONDUCTING ELECTRICITY.

Look for the switch first of all, and if you find it, turn off the current immediately. Do not waste too much time hunting for the switch; however, every second is important.

If you cannot find the switch, you should try to remove the wire from the victim with a **DRY** broom handle, branch, pole, oar, board, or similar **NONCONDUCTING** object (fig. 20-21). It may be possible to use **DRY** rope or **DRY** clothing to pull the wire away from the victim. You can also break the contact by cutting the wire with a **WOODEN-HANDED** axe, but that is extremely

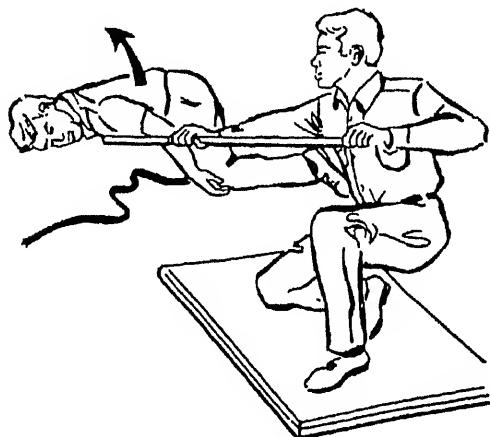


Figure 20-21.—Pushing a victim away from a power line.

dangerous because the cut ends of the wire are likely to curl and lash back at you before you have time to get out of the way. When you are trying to break an electrical contact, always stand on some **NONCONDUCTING** material such as a **DRY** board, newspaper, or clothing.

Administer artificial ventilation immediately after freeing the person from the wire if the electric shock caused breathing to stop. Check the victim's pulse, since electric shock may also cause the heart to stop. If you do not feel a pulse, immediately administer CPR. Get the victim to a medical facility as soon as possible.

TRANSPORTATION PROCEDURES

Thus far, we have dealt with emergency methods used to get an injured person out of danger and into a position where first aid can be administered. As we have seen, these emergency rescue procedures often involved substantial risk to the victim and should be used **ONLY** when clearly necessary.

Once you have rescued the victim from the immediate danger, **SLOW DOWN!** From this point on, handle and transport the victim with every regard for the injuries that have been sustained. In the excitement and confusion that almost always accompany a mishap, you are likely to feel rushed, as though you must do everything rapidly. To a certain extent, that is a reasonable feeling to have. Speed is essential in treating many injuries and in getting the casualty to a medical officer or hospital. However, it is NOT reasonable to let yourself feel so hurried that you handle the victim roughly or carelessly, or transport the victim in a way that will aggravate the injuries.

General Precautions

The basic precautions that must be observed in transporting an injured person may be summarized as follows:

1. Give necessary first aid **BEFORE** attempting to transport the victim if possible. Be sure all injuries have been located. Treat serious breathing problems, bleeding, and shock in that order. Immobilize all fractures, sprains, and dislocations. Do whatever you can to reduce the victim's pain and to make the victim as comfortable as possible under the circumstances.

2. Use a regular stretcher if one is available; if you must use an improvised stretcher, be sure it is strong enough. Be sure, also, that you have enough personnel to carry the stretcher so that you will not run any risk of dropping the victim.

3. Whenever possible, bring the stretcher to the victim instead of carrying the victim to the stretcher.

4. Fasten the victim to the stretcher to prevent slipping, sliding, or falling off. Tie the victim's feet together, unless the injuries make it impracticable.

5. Use blankets, garments, or other material to pad the stretcher and to protect the victim from exposure.

6. As a general rule, an injured person should be lying down, face up, while being moved. However, in some instances the type or location of the injury will necessitate the use of another position. If the victim has a chest wound, raising the head and shoulders may give greater comfort, and ease any breathing difficulties the victim may have. A person who has a broken bone should be moved very carefully so that the injury will not be made worse. If the victim has received a severe injury to the head, the victim should be kept lying on the side or on the back with the head turned to one side to prevent choking on saliva, blood, or vomit while being transported. In all cases, it is important to place the victim in a position that prevents further injuries.

7. The stretcher should be carried in such a way that the victim will be moved **FEET FIRST**, so that the rear stretcher bearer can continually watch the victim for signs of breathing difficulty.

8. If you must use a motor vehicle to transport a seriously injured person, the best means is an ambulance; if no ambulance is available, however, a truck or station wagon makes a fairly good substitute. If it is necessary to use a passenger car to transport a seriously injured person, the victim should be put in a place that requires the least amount of bending, twisting, or turning.

9. Do not turn the victim over to anyone without giving a complete account of the situation. Be sure the person taking over knows what caused the injury and what first-aid treatment has been given. If a tourniquet has been applied, make sure that is known to the person who is taking charge of the victim.

Stokes Stretcher

The Navy service litter most commonly used for transporting sick or injured persons is called the Stokes stretcher. As shown in figure 20-22, the Stokes stretcher is essentially a wire basket supported by iron or aluminum rods. It is adaptable to a variety of uses, since the victim can be held securely in place even if the stretcher is tipped or turned. The Stokes stretcher is particularly valuable for transferring injured persons to

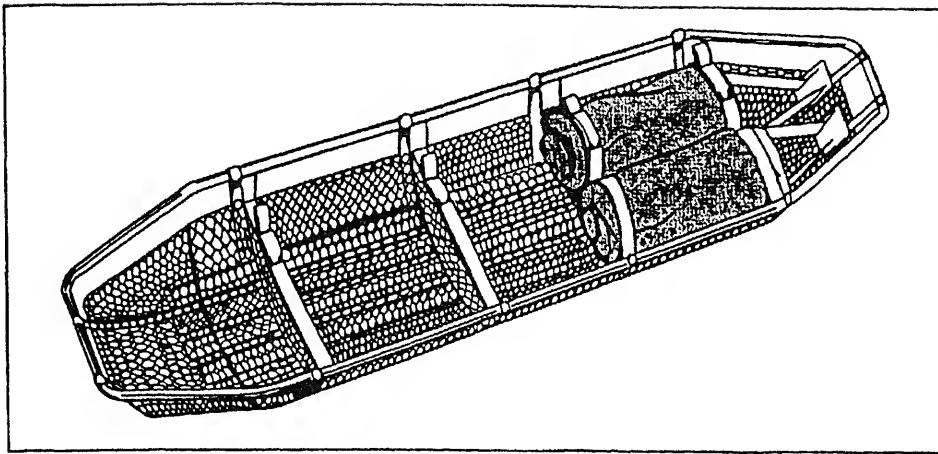


Figure 20-22.—Stokes stretcher.

and from boats. It is also used for direct ship-to-ship transfer of injured persons.

Neil Robertson Stretcher

The Neil Robertson stretcher is designed for removing an injured person from engine-room spaces, holds, and other compartments where access hatches are too small to permit the use of regular stretchers.

The Neil Robertson stretcher is made of semirigid canvas. When firmly wrapped around the victim mummy-fashion, it gives sufficient support so the victim may be lifted vertically (fig. 20-23). To keep the injured person from swaying against bulkheads and hatchways while being lifted, a guideline is tied to the victim's ankles.

Stretchers of this type can be made on board ship and kept in appropriate places ready for use. If a Neil Robertson stretcher is not available when needed, a piece of heavy canvas, wrapped firmly around the victim, will serve somewhat the same purpose.

Emergency Rescue Lines

An emergency rescue line can be made from any strong fiber line. These lines should be used only in extreme emergencies, when an injured person must be moved and no other means is available.

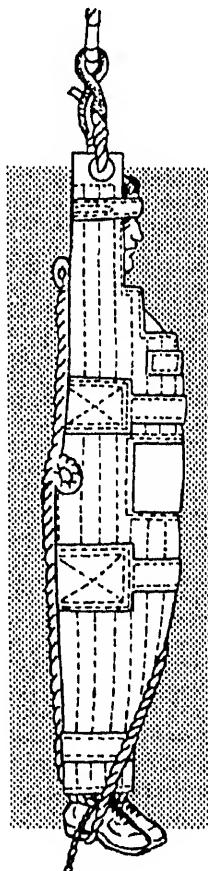


Figure 20-23.—Neil Robertson stretcher.

Figure 20-24 shows an emergency rescue line that could be used to hoist a person from a void or small compartment. Notice that a running bowline is passed around the body, just below the hips, and a half hitch just under the arms. Again, a guideline is tied to the victim's ankles.

PERSONAL HYGIENE

Because of the close living quarters in the Navy, particularly aboard ship, personal hygiene is of the utmost importance. Developing good personal hygiene habits is essential for the good health of the individual and for the protection of the entire crew. For the same reasons, sanitary conditions aboard ship must be maintained at all times. Clean spaces are a necessity. Dirt breeds disease. When spaces are kept clean and orderly, the general well-being of the crew improves and morale increases. No one wants to live or work in a filthy environment. In the Navy and at home, everyone should make it a habit to keep living and working spaces as clean as possible. Maintaining a clean, healthy environment reduces the chances of illness.

Negligence in reporting to the medical officer any matter that affects one's health is inexcusable. It can lead to a more serious illness. Do not ignore minor injuries. An untreated cut or scratch can lead to infection, loss of

a limb, and even death. If you cannot report for treatment right away, wash the injury with soap and clean water. A large wound should not be washed, but it should be covered with a clean dressing until it can be attended to by medical personnel.

Unless conditions prevent you doing so, you should shower and change underwear daily. After showering, you should dry thoroughly, particularly the feet, to prevent fungus development. Wear shower shoes when taking a shower to avoid contracting athlete's foot.

Wear only properly fitted shoes and socks. The inner dimensions of the shoe should be about 1/4 inch longer and wider than the foot. Improperly fitted socks and socks with holes can cause blisters. Socks should also be changed daily. Ingrown toenails can be prevented by cutting the nails straight across. If corns or other foot ailments develop, have them treated at once.

Hair must be kept neatly trimmed and should be washed often. Keep fingernails trimmed and clean. Change bunk linen at least weekly.

Daily exercise improves bodily functions, and it increases muscle tone and physical endurance. Even aboard small ships, it is possible to exercise in some manner. Get as much sleep as watch and working conditions permit.

Navy food is good and wholesome, and it provides a well-balanced diet. Do not be finicky in your eating habits, even though some foods may not seem to taste as good as others. Learn to eat a variety of foods, try to avoid putting more on your tray than you care to eat.

ORAL HYGIENE

Many dental disorders begin with the buildup of bacterial plaque that remains undisturbed around the teeth. The purpose of personal oral hygiene is to remove this plaque buildup. Plaque can be removed by proper toothbrushing and flossing techniques.

There are three common dental diseases that are caused by poor dental hygiene: tooth decay, reddening of the gums, and gum and bone disease. Any of these can cause the loss of a tooth; but with proper oral hygiene, these diseases can be controlled or prevented.

Tooth decay can be reduced by cutting down on sweets and by brushing properly. For most people, cavities and disease of the gum and bone occur primarily between the teeth. No toothbrush can effectively cleanse these areas or the areas behind the last tooth in each arch. You must use dental floss to clean such hard-to-reach



Figure 20-24.—Emergency rescue line.

before or just after brushing. Unwaxed dental floss should be used in most cases.

Dental cleansing devices, oral irrigators, and commercial mouthwashes are aids to oral hygiene. They may be used in addition to—but not in place of—toothbrushing and flossing. If these devices are electrically powered, they must be safety checked by electrical safety personnel before use.

CAUTION

Oral irrigation may be harmful for individuals with cardiovascular problems.

In addition to all of these procedures, you should also have a dental checkup every 6 months or at least once a year. Your dental technician or dentist can show you the proper way to brush and floss your teeth.

SEXUALLY TRANSMITTED DISEASES

Sexually transmitted diseases (STDs) is an illness caused by organisms that are transmitted through sexual intercourse or by forms of other intimate body contact with an infected person. The disease germs that cause syphilis and gonorrhea are very fragile and can live for only short periods of time outside the body. Venereal disease is not spread from inanimate objects such as toilet seats, drinking glasses, bed linens, or clothes.

Syphilis and gonorrhea are the two most common sexually transmitted diseases in the United States. Syphilis has had the worst reputation, but it is gonorrhea that is out of control.

Syphilis

Syphilis can attack any tissue or organ of the body and is especially damaging to the brain, spinal cord, blood vessels, and heart.

A painless sore, called a chancre, is the first sign of syphilis. The sore usually appears on or around the sex organs about 9 to 90 days after contact with an infected person. The chancre will heal within a few weeks, even

Other signs of syphilis that may develop either before or after the chancre goes away are a rash that may cover any part of the body; white, glistening spots in the mouth; and fever, sore throat, and headaches. The rash and other signs may not appear or may be so slight as to be unnoticed.

After these signs disappear, the germs may be hidden for 10 to 20 years. If untreated, the disease can cause mental illness, blindness, heart disease, or even death.

Syphilis is not inherited, but a pregnant woman with the disease can give it to her unborn child. These babies are born with congenital syphilis. A baby with congenital syphilis may be born dead or deformed. Congenital syphilis can be prevented if it is detected and treated in time.

The signs of syphilis may resemble many other diseases, or the signs may be slight and be unnoticed. The disease can be detected by a blood test for syphilis.

Gonorrhea

If you have gonorrhea and do not get treatment, you may become sterile. Gonorrhea can damage the sperm ducts in males and the fallopian tubes in females. In men and women, gonorrhea may result in crippling arthritis, meningitis, or heart disease.

The signs of gonorrhea in males usually appear 3 to 5 days after sexual contact with an infected partner. Most men have a pus discharge from the sex organ and a painful, burning sensation during urination. Women rarely have painful symptoms until gonorrhea has seriously damaged their reproductive system. There may be some vaginal discharge or burning during urination, but women will usually have no symptoms and will not know that they have gonorrhea until a sexual partner has been infected.

If you have syphilis or gonorrhea, a cure is as near as your medical department. But early treatment is important. These diseases can be cured even in people who have had the disease for a long time, but the damage to the vital organs may be irreversible.

Self-treatment or pills from a friend are extremely dangerous.

Genital Herpes Infection

Genital herpes is an increasingly common viral infection that produces recurrent, painful genital sores

is no known cure for genital herpes at this time; the infected person may have recurrences of lesions throughout life. Individuals should avoid sexual intercourse when the sores are present because the herpes virus is infectious in this phase of the disease. Genital herpes is not infectious when the sores are not present.

Acquired Immune Deficiency Syndrome

The Acquired Immune Deficiency Syndrome (AIDS) was first reported in the United States in mid 1981. AIDS is a serious illness and a public health problem that merits concern. It has been named as the number one priority of the U.S. Public Health Service.

Researchers in the Public Health Service and in many major medical institutions, worldwide, have been working continuously, studying AIDS, trying to identify its cause, and trying to develop treatments and preventive measures.

AIDS is a serious condition characterized by a defect in natural immunity against disease. People who have AIDS are vulnerable to serious illnesses that would not be a threat to anyone whose immune system was functioning normally. These illnesses are referred to as "opportunistic" infections or diseases.

Investigators have discovered the virus that causes AIDS. Different groups of investigators have given different names to the virus, but they all appear to be the same virus. The virus is called either human immune virus (HIV); human T-lymphotropic virus, type III (HTLV-3); lymphadenopathy associated virus (LAV); or AIDS-related virus (ARV). Infection with this virus does not always lead to AIDS. Preliminary results of studies show that most infected persons remain in good health; others may develop illness varying in severity from mild to extremely serious.

Most individuals infected with the AIDS virus have no symptoms and feel well. Some develop symptoms that may include tiredness, fever, loss of appetite and weight, diarrhea, night sweats, and swollen glands (lymph nodes)—usually in the neck, armpits, or groin. Anyone with these symptoms which continue for more than 2 weeks should see a doctor.

AIDS is spread by sexual contact, needle sharing, or less commonly, through blood or its components. The risk of getting AIDS is increased by having multiple sexual partners, either homosexual or heterosexual, and sharing needles among those using illicit drugs. The occurrence of the syndrome in hemophilia patients and

persons receiving transfusions provides evidence for transmission through blood. It may be transmitted from infected mother to infant before, during, or shortly after birth.

Prevention

Using a condom during sexual contact offers some protection. Cleansing of the genital area with soap and water immediately after sexual contact, as well as urinating right after sex, washes away some of the germs and may also help in preventing contracting sexually transmitted diseases. These steps do not ensure complete protection, but they can reduce the chances of being infected. Birth control pills, of course, offer no protection against STDs. If you had the disease once and have been successfully treated, that does not grant you immunity against contracting an STD again.

If you have been diagnosed as having an STD, and are receiving treatment at the present time, do not attempt to hide the name(s) of your sexual partners. The chances are that one of them infected you or have been infected by you. They deserve the benefit of treatment too. The health department will contact the persons named and treat them. These steps, which are done confidentially, can help in stopping an outbreak of a sexually transmitted disease.

SUMMARY

In this chapter we have given you some of the basic steps and procedures required in administering first aid. You may never have the need to use these procedures, but if the situation should arise, by following the procedures outlined, and with additional training, you may be in a position to render what could be life saving assistance. We also covered the recommended ways of transporting injured personnel so they can receive proper medical attention.

Personal hygiene is an important part of living closely together, like we do in the Navy. A shipmate not overly concerned with keeping himself or herself clean and squared away could not only affect our physical well-being, but could also affect the morale of a great number of crew members. Keeping yourself clean and squared away will not only benefit you, but the people you come into contact with on a daily basis.

Another topic we discussed, and one that at times can be very touchy, is sexually transmitted diseases. Being attracted to a member of the opposite sex is a natural reaction. Be aware of the possibility that if you engage in multiple sexual relations, you could become

fected with one of the sexually transmitted diseases discussed in this chapter. Being responsible in your sexual relations and using approved protective measures will go a long way toward protecting yourself.

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CHAPTER 21

WATCH STANDING AND COMMUNICATIONS

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Identify the contents and purpose of the watch, quarter, and station bill.
2. Describe the watch organization for afloat and ashore commands.
3. Explain the procedures for standing nonpetty officer watches.
4. Define the reasons for standing watches.
5. Identify the types, duties, and responsibilities of a Navy watch stander.
6. Define the procedures for relieving an armed watch.
7. Recognize the difference between true and relative bearings.
8. Define the procedures for locating and reporting objects by relative bearing, position angle, and target angle.
9. Describe the procedures for making reports.
10. Define the term *night vision*.
11. Describe the procedure for scanning.
12. Explain how to pronounce numbers and use the phonetic alphabet.
13. Describe the procedure used to break-out, man, test, and secure sound-powered phones.
14. Explain the standard procedures for the use of interior communications equipment.
15. Select the proper phraseology when using interior communications equipment.
16. List the procedures for establishing communications security.
17. Identify the general administrative and emergency signal flags and pennants.

In this chapter, we will discuss the basic shipboard watch organization; describe a typical watch, quarter, and station bill; define watch terms; and describe some typical watches, both ashore and afloat.

All of your activities, whether you are on or off duty, involve some form of communication with others. On board ship the use of the phonetic alphabet and the proper use of interior communications equipment, such as sound-powered phones, announcing systems, and telephones, is a way of life. This chapter deals with communications language, communications equipment, and their proper use.

We will also tell you how to identify Navy signal flags and pennants, their meanings, and how the more important signal flags are used.

WATCH STANDING

During a ship's entire commissioned life, it will always have sailors on watch. There are probably more than a hundred different types of watches, depending upon the ship or station.

Whatever type of watch, the watch stander must devote full attention to it. The ship's organization and the watches manned by its personnel keep the ship running smoothly 24 hours a day. Watches vary, of course, depending upon both the type of ship and whether the ship is under way or in port. Even when the ship is moored in port and receiving hotel services (utilities, such as steam, water, and electricity) from the pier or another ship, it is necessary to maintain a watch for communications, security, and safety.

During your time in the Navy, you will be required to stand many watches. Some watches will be of a security nature, such as a pier sentry or roving patrol; others will be operational, such as a telephone talker and/or status board operator. Whatever the type of watch, you must devote your full attention to it. Inattention or negligence on your part can have serious consequences.

WATCH, QUARTER, AND STATION BILL

For any ship to carry out its assigned missions and tasks, it must have an administrative organization wherein every person is assigned one or more tasks, and the personnel must receive training to enable them to perform their jobs.

The ship's organized plan for action is contained in the battle bill, which is based upon the organization manual and other pertinent publications and directives. Included in the battle bill are lists of stations that must be manned during battle and at other specified times. Using the organization manual and the battle bill as references, each division officer and division chief is responsible for assigning qualified personnel in the division to the stations and entering their names on the watch, quarter, and station (WQS) bill.

This bill displays in one place your duties for each emergency and watch condition. It also shows your administrative and operational duties.

Contents of the Watch, Quarter, and Station Bill

The WQS bill lists, by billet number and rate, divisional stations to be manned for various situations. The billet number consists of either four numerals or a letter and three numerals. The first numeral (or letter) indicates the person's division; the second numeral indicates the section; the last two numerals show the person's seniority in the section. Figure 21-1 illustrates assignments for personnel in the first section of the first division.

Your bunk and locker numbers are usually the same. Of the three columns under RATE, the last one is of most interest to you. The first column shows the wartime complement, the second shows the peacetime allowance (usually less than for wartime), and the third lists the rates actually on board. Often, cleaning stations are omitted, since they are posted in a separate cleaning bill.

Under BATTLE STATIONS, condition I is general quarters, when all battle stations are manned, usually when surface or air action is imminent (about to take

COMPONENT		SECTION		DIVISION		COMPT A-303-L	
RECLASSIFICATION		FIRST		FIRST			
IN SERVICE							
7/14/1							
BILLET	NAME	RANK NO. NO.	LKR. RATE	CLEAN STATION	BATTLE STATIONS	SPLIT DEFENSE FORCE	EMERG. SETTING LINE/WAY
1101	Kings, K.K.	500	SPC/BMC	Machine Axle	In Charge Mechanics Axle	1000 1000 1000	1000 1000 1000
1102	Johnson, J.W.	41 1	SPC/BMC	Machine Axle	In Charge Mechanics Axle	1000 1000 1000	1000 1000 1000
1103	Peterson, D.M.	2 2	SPC/BMC	Machine Axle	In Charge Mechanics Axle	1000 1000 1000	1000 1000 1000
1104	Smith, S.S.	6 6	SPC/BMC	Machine Axle	In Charge Mechanics Axle	1000 1000 1000	1000 1000 1000
1105	Hasth, K.K.	9 9	SN SN	Scrubber Le., etc.	MT3	1000 1000 1000	1000 1000 1000
1106	Brown, R.R.	4 4	SN SN	Gig No. mess	MT3	1000 1000 1000	1000 1000 1000
1107	Ghee, R.A.	8 8	SN SN	Fuelie Pump MT3	MT3 BAR	1000 1000 1000	1000 1000 1000
1108			SN	MT32	AA Conv Pump	1000 1000 1000	1000 1000 1000
1109	Cook, C.C.	7 7	SN SN	Compt Pump	MT32	1000 1000 1000	1000 1000 1000
1110	Easty, E.E.	11 11	SN SN	MT32	MT32	1000 1000 1000	1000 1000 1000
1111	Fox, F.F.	13 13	SN SA	Fuelie MT32	MT32	1000 1000 1000	1000 1000 1000
1112	Datta, D.D.	5 5	SN SA	Compt Hose MT32	MT32	1000 1000 1000	1000 1000 1000

Figure 21-1.—Watch, quarter, and station bill.

place). Condition I is sometimes modified to permit a few persons at a time to rest on station or to permit designated personnel to draw rations for delivery to battle stations (condition IE). Condition II is a special watch used by gunfire support ships for situations such as extended periods of shore bombardment. Condition III is the normal wartime cruising watch. Normally, when cruising under condition III, the ship's company stands watch on a basis of 4 hours on, 8 hours off; about one-third of the ship's armament is manned in the event of a surprise attack.

Assignments to the self-defense force vary according to ship type. The purpose of the self-defense force is to provide a capability for reacting to emergency security situations aboard ship and at pierside to protect the ship, its sensitive equipment, and its personnel. The next column, EMERGENCY GETTING UNDER WAY, is for use in port when most of the crew is ashore and the ship must get under way before personnel can be recalled.

Under WATCH DETAIL, the left column is for normal peacetime cruising, or condition IV. The number of watch sections depends on the type of ship and the number of personnel aboard. The right column lists the type of watch personnel will stand in port (condition V). The time of the watch is posted on a separate in-port watch list.

The special sea detail is manned whenever the ship leaves and enters port. Because of the critical nature of mooring or anchoring, getting under way, and maneuvering in restricted waters, only the most experienced persons are assigned to these details. You can expect to be assigned to a station, however, so that you can learn what to do and how to do it.

The remaining columns of the WQS bill, except the last one, are for assignments to the ship's emergency bills. You must always be prepared to man your emergency station and know where to get the equipment you may be required to provide.

For a man-overboard situation, you go to quarters or some other designated place of muster if you are not assigned a specific detail. The final column is for assignments to such miscellaneous details as mess cooking, MAA duty, and side boys.

Responsibilities

It is your responsibility to check the WQS bill daily for any changes made in your assignments and to refresh your memory for assignments to seldom-used details

(such as to a prize crew). When abandon ship drill is held, for instance, you should not have to take time to find out what your station is and where it is located.

WATCHES

Most of the watches in the Navy are of 4 hours duration, with the time off between watches dependent on the number of sections and the number of personnel in each station. Normally, they start on the even hours, such as 0400, 0800, or 1200. You should, however, arrive at your station at least 15 minutes ahead of time to receive any pertinent information from the person you are relieving.

Military Time

The Navy uses the 24-hour system of keeping time, with the day starting at midnight. Four numerals are used to indicate the time—the first two digits indicating hours and the last two representing minutes. The hour of midnight is expressed two ways: 0000 to indicate the start of the day, and 2400 to indicate the end of the day. Each succeeding hour, starting at midnight, is increased by 100 (0000, 0100, 0200, and so on) until 2400 is reached when a new day starts.

Time is spoken in hundreds. For example, 0100 (1:00 a.m.) is spoken "zero one hundred"; 2000 (8 p.m.) is pronounced "twenty hundred"; 2315 (11:15 p.m.) is spoken "twenty three fifteen."

Converting time on a 12-hour clock to Navy time is an easy matter. The hours from midnight to noon present no problem; from noon to midnight, simply add 12 hours to the time indicated.

The ship's bell may also be used to indicate time. The bell is struck once for each half hour, with a maximum of eight bells. At 0830, for instance, one bell is sounded; at 0900, or two bells; and so on until eight bells are struck at 1200. The use of this system is usually restricted to the hours between reveille and taps.

Watch Terms

Two methods are used in identifying watches. One method uses a descriptive name that identifies the type of watch—pier sentry, for instance. (Types of watches are discussed later.) The other method also uses a name, but it identifies the time of the watch. Standard watch times and their names are given in the following listing:

0000 to 0400 . . . Midwatch

0400 to 0800 . . . Morning watch

0800 to 1200 . . . Forenoon watch
1200 to 1600 . . . Afternoon watch
1600 to 1800 . . . First dog watch
1800 to 2000 . . . Second dog watch
2000 to 2400 . . . Evening watch

The dog watches permit rotation of the watches; otherwise, personnel would stand the same watch every day. (Usually the 1600-2000 watch is dogged only at sea.) Persons having the midwatch normally are permitted to sleep 1 hour past reveille (late sleepers).

Often, particularly in foreign ports when extra security precautions are required, the ship's crew is placed in two sections: port and starboard. In such instances, one of the normal three sections (usually the third) is split between the first and second sections. The resulting first section becomes the starboard section; the second section, the port section. If the crew is divided into four sections, the odd-numbered sections make up the starboard section; the even-numbered ones, the port section. The actual watches, though, conform to the times described.

TYPES OF WATCHES

Hundreds of different types of watches are required throughout the Navy for various situations or occasions. Most of them are of a professional nature; that is, they are peculiar to a specific rating or rating group. Our discussion, therefore, is limited to a few that are more or less of a security nature and that may be stood by most personnel at one time or another.

Security watches are stood to prevent sabotage, to protect property from damage or theft, to prevent access to restricted areas by unauthorized persons, or to protect personnel. Included in this category are sentry duty, barracks watches, fire watches, and watches stood under way.

Watch Officers

The watch system is divided into two parts—underway and in port. Some key assignments for officers in the watch organization include the CDO, OOD, JOOD, and JOOW. Senior enlisted watch standers also have a number of important assignments. (In fact, many senior petty officers can qualify for some of the officers' assignments.) While there are scores of other enlisted watch assignments, those described in the following sections are the most important and the most

responsible. The majority of other enlisted watch standers report to, or through, these watch officers.

COMMAND DUTY OFFICER.—Although an official watch stander, the command duty officer (CDO) may be on duty for a period of several watches. The CDO is eligible for command at sea and is designated and empowered by the captain to advise, supervise, and direct the officer of the deck (OOD) in matters concerning the general operation and safety of the ship or station.

OFFICER OF THE DECK.—The officer of the deck (OOD) is in charge of the ship and is responsible to the commanding officer (CO) for the safe and proper operation of the ship or station. That includes navigation, ship handling, communications, routine tests and inspections, reports, supervision of the watch, and carrying out the plan of the day (POD).

JUNIOR OFFICER OF THE DECK.—The junior officer of the deck (JOOD) is the principal assistant to the OOD. Anyone making routine reports to the OOD normally makes them through the JOOD or the JOOW.

JUNIOR OFFICER OF THE WATCH.—The junior officer of the watch (JOOW), when assigned, is in training for qualification as the OOD.

CIC WATCH OFFICER.—The combat information center (CIC) watch officer supervises the operation of the CIC, which reports, tracks, and evaluates air, surface, and submarine contacts.

The Quartermaster of the Watch

The quartermaster of the watch (QMOW) is an enlisted assistant to the OOD while under way (and in port on certain classes of ships). The QMOW assists the OOD in navigational matters and maintains the ship's deck log. Additional duties include reporting and recording weather changes and executing required ship's navigational lighting changes. The QMOW, who must be a qualified helmsman, supervises the helmsman if senior to the BMOW.

The Boatswain's Mate of the Watch

The boatswain's mate of the watch (BMOW) is an enlisted assistant to the OOD during underway watches. The BMOW must see that all deck watch stations are manned with qualified personnel and all watch standers in previous watch sections are relieved. Although the section leader and the division petty officer have the duty of instructing the personnel they send on watch, the BMOW must verify that every person in the watch has

been properly instructed and trained. A BMOW, who must be a qualified helmsman, supervises the helmsman if senior to the QMOW.

The Petty Officer of the Watch

The petty officer of the watch (POOW) is the primary enlisted assistant to the OOD in port. The duties of the POOW will be carried out by the QMOW when one is assigned.

The POOW has the following duties and responsibilities:

1. Assists the OOD and the JOOD, and supervises and instructs sentries and messengers.
2. Ensures smartness of watch-standing equipment during each watch.
3. Carries out the daily routine and orders as the OOD directs.
4. Notifies the OOD and the JOOW of any changes in the weather or change in the barometric pressure readings of 0.04 inch or more in any one hour.
5. Sends the messenger for necessary readings of the instruments installed on the bridge.
6. Makes entries in the deck log of all events of interest as directed by the OOD.
7. Ensures the messenger makes the calls listed in the call book kept on the quarterdeck.
8. Returns salutes and carries out the watch routine for the OOD or the JOOW when neither is at the gangway.
9. Calls away boats in sufficient time to make sure they are ready to leave the ship at the time prescribed in the boat schedule.
10. Keeps a list of personnel (such as boat crew) who may be expected to be absent on duty from the ship during meals and notifies the duty ship's cook of the approximate number and the time they will return for their meal.
11. Assembles liberty parties in ample time for inspection by the OOD before departure of scheduled liberty boats.
12. Performs such other duties as the OOD or JOOW may direct.

Lookouts, Sky and Surface

The lookout watch mans assigned lookout stations and performs duties as prescribed in the ship's lookout instructions. Lookouts should be rotated at least hourly. They are under the direct supervision of the OOD. Lookouts are trained in their duties by the CIC officer. The posting and training of lookouts will, as a minimum, conform to the requirements of the International Regulations for Preventing Collisions at Sea.

Messenger (Underway) Watch

The messenger stands the watch on the bridge and delivers messages, answers telephones, and carries out such duties as the OOD may direct. The messenger normally is assigned from the weapons/deck department.

Fog Lookouts

Fog lookouts are required during fog or reduced visibility. The watch is stood in those locations where approaching ships can best be seen or heard (normally in the bows). The fog lookouts stand a vigilant watch to detect, either by hearing fog signals or actually sighting, approaching ships or craft. Posting and training of fog lookouts will, as a minimum, meet the requirements of the International Regulations for Preventing Collisions at Sea. This watch will consist of two personnel, one phone talker and one lookout. The addition of the phone talker allows the fog lookout to work without his or her hearing being impaired by wearing sound-powered phones. As with other lookouts, the fog lookouts will be in contact with the OOD through the bridge phone talker.

Helmsman

The helmsman is a qualified steersman who steers courses prescribed by the conning officer. The helmsman alternates with other members of the deck watch as directed by the BMOW and as approved by the conning officer (who is generally the OOD or the JOOD). The helmsman is normally assigned from the weapons/deck department.

Lee Helmsman

The lee helmsman who stands watch at the engine order telegraph on the bridge rings up the conning officer's orders to the engine room, making sure all bells are correctly answered. The lee helmsman alternates

1. TO TAKE CHARGE OF THIS POST AND ALL GOVERNMENT PROPERTY IN VIEW. The number of the post, type of sentry duty, and limits of your post are part of your special orders. Within the limits of your post, you have authority over all persons, and it is your duty to challenge and, if necessary, detain all persons acting in a suspicious manner. You should apprehend all persons involved in disorder or discovered committing a crime. All persons detained or apprehended are turned over to the petty officer of the guard. You should fire your weapon only as a last resort. Smoking in a prohibited area, for example, is hardly a shooting offense. There are times, however, when firing at another person may be justified, but only after all means of defense or crime prevention have failed. In general, such times are as follows:

- a. To protect your own or another's life
- b. To prevent the escape of a person known to have committed a serious crime such as armed robbery, rape, or murder
- c. To prevent sabotage, espionage, arson, and other crimes against the government

If you must fire your weapon, attempt to wound instead of to kill the person on whom you fire.

2. TO WALK MY POST IN A MILITARY MANNER, KEEPING ALWAYS ALERT AND OBSERVING EVERYTHING THAT TAKES PLACE WITHIN MY SIGHT OR HEARING. Keep turning your head as you walk your post, observing everything ahead and to the sides. If you hear a strange noise, investigate it.

You cannot expect to stand all your watches in fair weather. When the weather is bad, you will be issued appropriate clothing. Do not stand under a tree to keep out of the rain or stay behind a building to get out of a cold wind; during times of bad weather and darkness, you must be particularly alert.

3. TO REPORT ALL VIOLATIONS OF ORDERS I AM INSTRUCTED TO ENFORCE. If a person is acting from thoughtlessness, you need only remind the offender of the regulation being broken. If you see a person starting to light a cigarette in a no smoking zone, for example, or a visitor blundering into a restricted area, you need only tell the person the regulation in effect. If the person is willfully violating a regulation, however, like trying to jump the fence or stealing Navy property, you must stop the person and place the offender under apprehension; then call for the petty officer of the guard. If the person tries to escape,

give the order to halt. If the person does not obey, fire into the air; if the person does not stop, fire at the fleeing party's legs, subject to the limitations given under general order 1. If the offender escapes, report the matter as quickly as you can to the petty officer of the guard. In every instance, try to remember what the offender looked like so that you may identify the person. Do not leave your post to chase the offender unless immediate action is essential.

By firing your weapon and shouting, you can alert other sentries to intercept the offender. Do not fire at an offender if anyone else is around who could be hit by your shot. It is better to let the wrongdoer escape—for the time being—than to shoot an innocent person.

4. TO REPEAT ALL CALLS FROM POSTS MORE DISTANT FROM THE GUARDHOUSE (quarterdeck) THAN MY OWN. Suppose your post is number 3. To call the petty officer of the guard for any purpose other than relief, fire, or disorder, you call, "Petty officer of the guard (or corporal of the guard), post number 3." Sentry number 2 will repeat your call, giving your number, and so will sentry number 1. Thus, the petty officer will know immediately which post to go to. Similarly, if sentry number 4 calls out, repeat the call, giving his or her number.

5. TO QUIT MY POST ONLY WHEN PROPERLY RELIEVED. If you are not relieved on time, do not abandon your post, but call the petty officer of the guard for instructions. If you require a relief because of sickness or other reason, call, "Petty officer of the guard, post number _____, relief."

6. TO RECEIVE, OBEY, AND PASS ON TO THE SENTRY WHO RELIEVES ME ALL ORDERS FROM THE COMMANDING OFFICER, OFFICER OF THE DAY, AND OFFICERS AND PETTY OFFICERS OF THE GUARD ONLY. During your tour of duty, you are subject to the orders of the commanding officer, executive officer, officer of the day, and the officers and petty officers of the guard only. Other officers and petty officers have no authority to take or inspect your weapon, to tell you how to stand your watch, or to order you to leave your post. Such other officers, however, still have the authority to investigate your conduct and to report it. Thus, an enemy agent cannot dress up in an officer's uniform and order you from your post. You obey orders only from officers whom you know are authorized to give you commands related to your sentry duty. However, a passing naval officer who believes you are standing a poor watch may ask your name and post and report any observations to your superiors.

7. TO TALK TO NO ONE EXCEPT IN THE LINE OF DUTY. When you challenge or talk with a person, take the position of port arms. Answer questions briefly but courteously. Normally, if you maintain silence and military bearing, visitors will not try to engage you in long conversations. If, however, visitors or other naval personnel show a desire to pass the time of day with you, you must say politely to them "Excuse me, I am on duty and cannot talk with you further. Please move on." If they refuse to move on, or show signs of becoming disorderly, you should call for the petty officer of the guard. Remember, if your superiors see you chatting while on duty, they will hold you responsible—not your visitor.

8. TO GIVE THE ALARM IN CASE OF FIRE OR DISORDER. In case of fire, you immediately call, "Fire, post number ____" and sound whatever alarm is available. When you are sure your alarm has been heard by the other sentries or by the petty officer of the guard, see what you can do about putting out the fire if you can do so safely and without leaving your post; otherwise, remain where you can direct apparatus to the fire.

Remember that the fire may be a trick to lure you away from your post. You must remain vigilant, even amid the confusion and excitement that accompanies a fire.

What we have said about fire applies also for disorder. In the event of a disorder, call the guard immediately; then try to quiet the trouble. If you approach the disorder first, you might be overcome and then could not give the alarm. Sometimes you can stop a disorder before it becomes too serious by calling to the persons involved, "I have reported you to the guard, who will be along immediately. Come to order now; further trouble will make matters worse for you." The persons concerned might realize you are right and follow your orders. If they do, maintain watch over them but do not approach too closely. Keep your weapon at port arms.

9. TO CALL THE PETTY OFFICER OF THE GUARD IN ANY CASE NOT COVERED BY INSTRUCTIONS. When you do not know what to do, call the petty officer of the guard.

10. TO SALUTE ALL OFFICERS AND ALL COLORS AND STANDARDS NOT CASED. As used here, colors and standards both refer to the national ensign. The ensign is called the national colors (or just colors) when it is flying from a staff or pike carried by an individual or displayed in a fixed location, as from a flagpole. When mounted on a vehicle, the ensign is called the national standard. (Colors and standards are

cased when they are furled and placed in a protective covering.) For sentries, the rules for saluting are the same as those described in chapter 4 of this manual with the following modifications:

a. If you are walking your post or patrolling while armed with a rifle, you halt and salute by presenting arms; when at sling arms, you render the hand salute.

b. If you are in a sentry box, you stand at attention in the doorway when an officer approaches; if you are armed with a rifle, you present arms. If otherwise armed, you render the hand salute. If you are on duty in front of a building or passageway entrance where there is heavy traffic of officers, you may render the rifle salute at order arms. If you are in conversation with an officer, you do not interrupt the conversation to salute another officer. If the officer with you salutes a senior, however, then you also salute.

c. During the time of challenging, you do not salute an officer until the officer has advanced and has been duly recognized. You do not salute if to do so will interfere with the proper execution of your specific duties.

11. TO BE ESPECIALLY WATCHFUL AT NIGHT AND DURING THE TIME FOR CHALLENGING, TO CHALLENGE ALL PERSONS ON OR NEAR MY POST, AND TO ALLOW NO ONE TO PASS WITHOUT PROPER AUTHORITY. When you see a person approaching your post, take the position of port arms and call, "Halt! Who is there?" The challenge must be made at a distance sufficient to prevent your being rushed by the person being challenged. If the person answers "Friend" or "Petty officer of the guard" or gives another reply indicating a friendly nature, call, "Advance (friend, and so on) to be recognized."

If you challenge a party of persons, after receiving a reply indicating the party is friendly, you call, "Advance one person to be recognized." When you have identified the one, you have the person bring up the rest of the party and identify each individual.

You must positively identify all persons challenged before permitting them to pass. If you cannot identify them to your satisfaction, detain them and call the petty officer of the guard.

Never permit more than one person to advance at a time. If two persons approach at the same time, have them halt; then advance the senior and pass that person

(if properly identified) before advancing the other person.

If the people are in a vehicle, you halt them and inspect the driver's or the passengers' credentials, as appropriate. (Normally, inspecting the driver of a military vehicle is sufficient; but for a commercial truck or taxi, you should check the passengers too.) If you believe there is something suspicious about the vehicle or its occupants, direct one of the occupants to get out and approach you for recognition. If you are not satisfied beyond a reasonable doubt that the people are authorized to pass, detain the person or party and call the petty officer of the guard.

When challenging, advancing, and passing persons and patrols, always stand where you can get a good look at them in such a way that you are protected from a surprise attack.

RELIEVING AN ARMED WATCH

Two methods are used for relieving armed sentries. One way (usually used ashore) is for the POOW to fall in the reliefs and march them to their posts. Normally, each person in the relieving detail is armed with a rifle. At each post, the petty officer halts the ranks, and both the sentry being relieved and the reporting sentry come to port arms while the person being relieved passes any special orders or other information the relief should know.

In the other method (usually used aboard ship), each relieving sentry goes alone to the post. This sentry normally is unarmed and will relieve the sentry of the rifle or pistol as well as the post. The relief reports to the sentry, "I am ready to relieve you." The sentry executes inspection arms and port arms and repeats the orders; the relief says, "I relieve you." The relieving procedure is completed when the sentry being relieved passes the rifle to the relief and says, "I stand relieved."

When standing an armed watch with a pistol, you must strictly observe the following additional precautions:

1. Keep the pistol in its holster except when the watch is relieved or circumstances require you to use it. Never engage in horseplay with the pistol—it is a deadly weapon and must always be treated as such.
2. Do not surrender the pistol to any unauthorized person.
3. The pistol normally is carried unloaded aboard ship with one or more loaded clips (magazines) in pouches attached to the pistol belt. Leave the clips in

their pouches. If the practice aboard your ship is to carry the pistol loaded, do not have a round in the chamber.

4. When being relieved, remove the magazine and jack the slide to the rear. With the weapon pointed in a safe direction, check the chamber, ensuring no rounds are present. Release the slide and let the hammer go home (weapons terminology for returning the hammer to the uncocked position).

CIRCUMSTANCES UNDER WHICH A WEAPON MAY BE FIRED

ONLY the CO can authorize the use of deadly force. (The term *deadly force* is defined as that force which, if used, has the potential to cause death or serious bodily harm.) The pistol or rifle should be used only as a last resort and then only under the following conditions:

1. To protect your life or the life of another person where no other means of defense will be effective in the particular situation
2. When no other effective means is available to prevent the commission of or to prevent the escape of a person known to have committed robbery, murder, rape, arson, or kidnapping
3. To prevent acts of sabotage, espionage, or other crimes against the government after failure of all other available means of preventing such crime

LOOKOUTS

You may wonder why visual lookouts are needed today when U.S. Navy radars and sonars are the best that can be built. Well, there are some objects radar cannot detect, and water conditions may severely limit the sonar detection range. You might be able, for example, to see a submarine's periscope that is beyond sonar detection range and whose radar indication is lost in the surrounding sea return echoes.

Lookouts are vital members of the ship's operating team. As mentioned above, there are some objects radar cannot detect. Smoke, flares, swimmers, torpedo wakes, debris, low-flying aircraft, and life rafts are either impossible or very difficult to detect. Sometimes, radar also indicates the presence of objects that actually are not there. A lookout may be able to verify the validity of a radar contact report and identify the objects detected. During conditions of electronic silence, lookouts are the only means of detection.

The number of lookout stations varies according to the type of ship and whether it is peacetime or wartime.

Large ships naturally have more personnel available than do small ships; therefore, they can man more lookout stations. More lookouts are required in wartime than in peacetime. When sufficient personnel are available in peacetime, and always in wartime, three basic lookout searches are established: SURFACE LOOKOUTS, who search from the ship to the horizon; LOW SKY LOOKOUTS, who search from the horizon to 5 degrees above it; and HIGH SKY LOOKOUTS, who search from the horizon to the zenith (directly overhead). Additionally, several persons may be assigned to each search, each person being responsible for a specified sector. Adjacent sectors have about 10 degrees overlap so that no area will be overlooked.

The normal peacetime lookout organization has three persons in each watch section. Two persons are located on the bridge or atop the pilothouse (for destroyer-type ships)—one searches to port, the other to starboard. Their sectors extend from just abaft the beam forward to dead ahead. The third person is stationed aft and is called the AFTER LOOKOUT/LIFE BUOY WATCH. This sector extends from the starboard beam aft and around to the port beam. In addition to reporting all objects behind the ship, if you were the after lookout, you would have the responsibility for promptly throwing overboard a life buoy if you see a person fall over the side, hear the cry "Man overboard," or hear cries for help coming from the water. If you, as the after

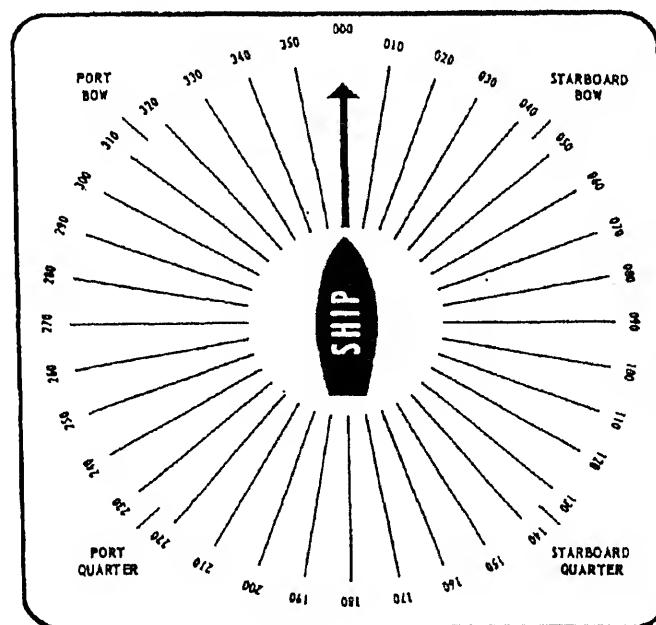
lookout, are the first to see the accident, you call, "Man overboard, (port/starboard) side." You also relay reports made by others.

When you are on lookout watch, always report everything you see or hear. Trash in the water may seem unimportant to you, but it indicates a vessel has passed that way. In wartime, such a disclosure could lead to the sinking of the vessel. Discolored water may mean you are entering a shoal area. The OOD will never reprimand you for reporting objects but will reprimand you for not reporting them. There is no excuse for letting the OOD see something before you do.

BEARING

The direction of an object from a ship is called the bearing. Bearings are measured in degrees clockwise around a circle—from 000° to 360°. Relative bearings use the ship's bow as a reference point; true bearings use true north (the geographic north pole) as the reference point; and magnetic bearings use the magnetic north pole as the reference point. All three types of bearings may sometimes coincide, but such situations are rare and of a temporary nature. Lookouts report objects (contacts) in degrees of relative bearing.

Figure 21-2 shows the relative bearings around a ship. An object dead ahead bears 000°, while an object



abeam to starboard bears 090° , and so on. Study this figure, practice pointing to various objects, and compare your estimates of their bearings to what the objects actually bear. With practice, you should be able to report a contact within 5° to 10° of its actual bearing.

To prevent confusion, the Navy has established a standard system for pronouncing numerals. The following list shows how numerals are spoken:

Numerals	Pronounced
0	Zero
1	Wun
2	Too
3	Tree
4	Fo-wer
5	Fife
6	Six
7	Seven
8	Ate
9	Niner

Bearings are always reported in three digits and spoken digit by digit, except that objects dead ahead or astern (000° or 180°) or on either beam (090° or 270°) may be reported as such. For example, a ship bearing 090° may be reported as being "abeam to starboard."

Do not become excited when you report contacts or other sightings. Failing to use the proper terminology can result in the OOD wasting time trying to find the object. Take a few seconds to think about how you are going to report the sighting. Taking that few seconds could mean the difference between the entire bridge looking on the wrong side of the ship for a sighting that is actually on the other side. Note that the word *relative* was not included. It is understood that lookouts report only in relative bearing.

REPORTING TARGET ANGLE

Target angle is the relative bearing of your ship from another ship. You may wonder why you would care what your ship bears from another ship. The OOD uses target angles as an aid in determining the course of actions when another ship is sighted. (Target angles are useful during gunnery and antisubmarine operations.)

Assume you are the starboard lookout and you detect a ship on your starboard bow heading at a right angle across your course, as shown in figure 21-3. You

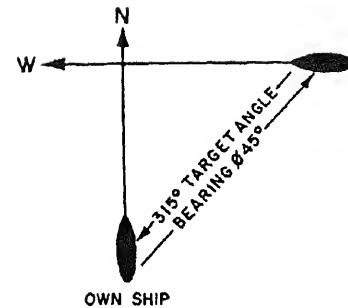


Figure 21-3.—Target angle.

report to the OOD, "Bridge, starboard lookout, contact bearing 045° , target angle Tree Wun Fife." Assuming that your course is 000° , the OOD knows the other ship's course is approximately 270° and, depending upon the speed of the two ships, the possibility of collision exists. Your target angle report has alerted the OOD that a change in course or speed or both may be required. A change in target angle can mean that the contact has changed course, which is not always immediately apparent to the radar plotters in CIC.

REPORTING POSITION ANGLE

An object located in the sky is reported by its bearing and position angle. The position angle of an aircraft is its height in degrees above the horizon as seen from the ship. The horizon is 0° and directly overhead is 90° . A position angle can never be more than 90° , as shown in figure 21-4.

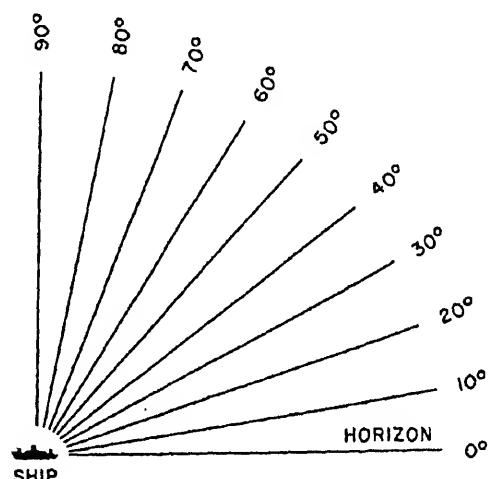


Figure 21-4.—Position angle.

Position angles are reported in one or two digits and spoken as a whole—not digit by digit.

Position angles should be reported on all aircraft. Notice the plane in figure 21-5. As the aircraft approaches the ship, the position angle increases. Whenever the position angle changes significantly, all stations should be informed. To help you more accurately determine an aircraft's position angle, you can use the aids illustrated in figure 21-6. The width of the thumb between the horizon and the aircraft is approximately 2° ; the width of the closed fist, approximately 8° ; and the open hand, approximately 15° (at arm's length).

REPORTING RANGES

Most of the time, if you give reasonably good bearings and position angles when reporting contacts, the OOD will have little difficulty in locating them. But suppose you sight a submarine periscope, a person, or some other object low in the water. In these instances, valuable time can be saved by reporting the object's approximate distance. Ranges are always reported in yards. Estimating distances over water is difficult for the inexperienced lookout. Distances can be very deceptive.

A ship that appears to be $1/2$ mile away may actually be twice, or more than twice, that distance from you. Conversely, objects that seem to be half the distance to the horizon may actually be considerably closer.

Knowing your height above the water will help you in estimating ranges. At a height of 50 feet, for example, the distance to the horizon is about 16,000 yards (8 miles); at a height of 100 feet, the distance is about 23,000 yards (11 $1/2$ miles). Practice estimating distances to known objects. Until you become proficient

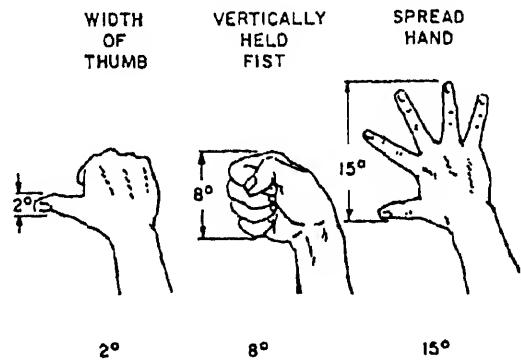


Figure 21-6.—Position angle aids.

at estimating ranges, use phrases such as, "close aboard," "on the horizon," and "hull down."

Ranges are reported in yards and spoken digit by digit, except that multiples of hundreds and thousands are spoken as such.

USE OF BINOCULARS

Contrary to widespread opinion, it is not always better to search with binoculars instead of using the naked eye. Several factors govern when and how they should be used. In fog, for instance, binoculars should not be used at all. At night, they should be used quite often. Another factor is their field of view, which is about 7 degrees. Depending on the type of search, such a narrow field may hamper proper scanning techniques.

Adjusting Binoculars

Three adjustments are required to obtain proper focus and to gain maximum benefit from the light-gathering quality of binoculars—two adjustments for focus and one for the proper distance between lenses.

To obtain proper focus, you should do the following:

1. Set both eyepieces to the +4 mark.
2. Place the binoculars firmly against the eyebrows and locate a small, well-defined object about $1/2$ mile away.
3. Cover one lens. (Do not touch the glass.)
4. Slowly turn the other eyepiece until a sharp image is obtained, then back off as far as possible without losing the sharpness. (Keep both eyes open; closing one will give an incorrect focus.)

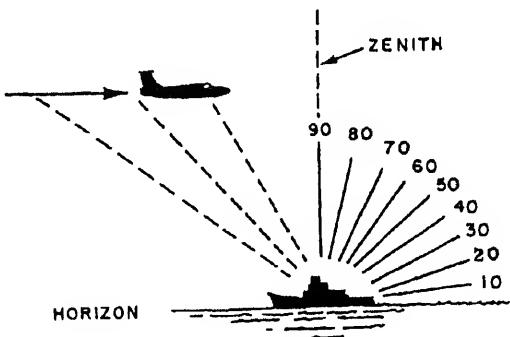


Figure 21-5.—Position angle.

5. Note the reading on the scale; then repeat the previous procedures two or three times to obtain the exact setting.
6. Follow the same procedure for the opposite eye.

The final adjustment is to establish the interpupillary distance (IPD), which is the distance between your eyes. Move the barrels up and down until you see a single circle, as shown in figure 21-7, then note the reading on the IPD vernier between the barrels. An incorrect IPD setting will strain the eyes and waste part of the binoculars' light-gathering ability.

You will not have your own personal binoculars—they are passed from watch to watch—so it is important that you know your focus and IPD settings so that the binoculars may be properly adjusted at night or when there are no objects on which to focus in the daytime. For nighttime use, the focus setting is one mark less than for daytime.

Daytime use of binoculars depends upon the type of search being conducted. Surface lookouts should use them to scan across their sector; they should then use the naked eye on return sweeps. Sky lookouts should use them only to identify a contact detected with the naked eye.

The binoculars should be used more frequently at night than during daylight, but searches should still be made with the naked eye. You often can see objects, particularly moving ones, out of the corner of your eye. These objects might not be detected with the binoculars because of their narrow field of view.

Binoculars should never be used in fog, rain, snow, or thick haze.

Care of Binoculars

Binoculars are fairly delicate instruments; they cannot stand much knocking about. Therefore, keep them on a short strap when wearing them to prevent their banging against solid objects. Always keep the strap around your neck. Never hold binoculars over the side of the ship without the strap being around your neck.



Figure 21-7.—Proper IPD setting.

Many pairs of binoculars have been lost over the side in this manner. Keep the lenses dry, otherwise you will not be able to see properly. Do not let them become overheated; the cement around the lenses might melt. Above all, keep them clean. You must be careful, however, not to damage the lenses when cleaning them. First, blow off loose dust; then breathe on the lenses (except in freezing weather) and gently clean them with lens paper. Rags, plain paper, handkerchiefs, or your sleeve or shirttail should not be used, as they might scratch the lens. You can usually get a supply of lens paper from the QMOW.

NIGHT VISION

If you were to go on night watch directly from a lighted compartment, you would seem to be almost blind for a few minutes. This reaction is the same experience as walking from a lighted theater lobby into the darkened theater. As your eyes become accustomed to the weak light, your vision gradually improves. After 10 minutes, you can see fairly well. After 30 minutes, you reach your best night vision. This improvement of vision in dim light is called dark adaptation.

Specially designed red goggles are provided for you to use before you go on night lookout duty. These goggles prepare your eyes for darkness while you wear them without affecting your ability to play games, write letters, or read before going on watch. You should wear them without interruption for at least half an hour before going on watch. Even then, it will still take you at least 5 minutes more in darkness to develop your best night vision.

After your eyes are dark adapted, you must learn to use your "night eyes." In the daytime, you should look directly at an object to see it best. In the dark, you should look to one side of an object to see it; this is called off-center vision. The reason for the differences between day and night vision is the structure of the eye.

The retina (on which images are projected) contains about one million nerve cells called cones and rods. The cones, located in the center of the retina, are very keen and can detect sharp details and colors. Inasmuch as the cones give us the sharpest images, we use them for daytime vision. Because they are located at the center of the retina opposite the lens, we must look directly at an object to see it best. At night, this spot is blind.

Nature, however, has provided us with rods that, though less acute than cones, contain a special pigment called visual purple, which is highly sensitive to light. Bright light causes the visual purple to turn yellow, and

the rods lose their sensitivity. In the dark, the visual purple starts to form again, and the eyes become dark adapted. The rods are located around the outside of the retina—therefore, we must use off-center vision at night; that is, we must look above, below, or to one side of an object to see it. At night, it also is easier to locate a moving object than one standing still. Because most objects on or in the water have a relatively slow speed, we move our eyes instead, and the effect is nearly as good. Thus, while scanning at night, lookouts move their eyes in slow sweeps across the area instead of stopping the eyes to search a section at a time.

SCANNING PROCEDURES

A well-trained lookout will see much more than a "green" hand would see. In good weather, lookouts can easily spot planes with the naked eye at 15 miles. With binoculars and in unusually clear weather, lookouts have detected planes at 50 miles. At night, skilled lookouts will detect objects that the untrained lookout would never suspect were there.

The lookout's technique of eye search is called scanning, which is a step-by-step method of looking; it is the only efficient and sure way of doing the job. Scanning does not come naturally; you must learn to scan through practice. In the daytime, your eyes must stop on an object to see it. Try moving your eyes around the room or across the water rapidly; note that as long as your eyes are in motion, you see almost nothing. Allow your eyes to move in short steps from object to object. Now you can really see what is there.

Figure 21-8 shows how you should search along the horizon. (You also must cover the surface between your ship and the horizon.) Search your sector in 5-degree steps, pausing between steps for approximately 5 seconds to scan the field of view. At the end of your sector, lower the glasses and rest your eyes for a few seconds; then search back across the sector with the naked eye.

Lookouts also search from the horizon to the zenith (overhead), using binoculars only to identify a contact.

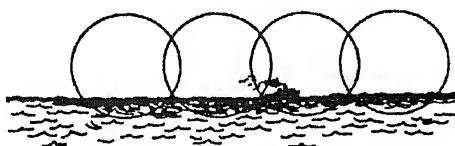


Figure 21-8.—Scanning, using the step-by-step method.

Move your eyes in quick steps (about 5 degrees) across your sector just above the horizon, shift your gaze upward about 10 degrees, and search back to the starting point. Repeat this process until the zenith is reached; then rest your eyes for a few seconds before starting over.

When searching at night, keep your eyes moving. Try to adhere to the sector scan (and upward shift) even though the horizon may not be visible. If you spot a target (or even think you have), do not stare at it. Instead, look slightly to either side.

REPORTS

Every object sighted should be reported, no matter how insignificant it may seem to you. The initial report consists of two basic parts: what you see and its bearing (direction) from the ship. Aircraft sighting reports also include altitude (position angle). Report the contact as soon as you see it, then follow with an amplifying report. Include the object's identity (destroyer, periscope, log, and so on) and direction of travel (closing, crossing, and so on).

COMMUNICATIONS

Communications are of vital importance to a shipboard organization and are sometimes referred to as "the voice of command." Without proper communication among the different parts of the ship, the whole organization could break down and fail in its mission.

Communications, as discussed in this chapter, are grouped into two basic categories: interior and exterior. Interior communications are concerned only with the exchange of information between individuals, divisions, and departments aboard a single ship or station. Exterior communications deal with conveying information between two or more ships, stations, or commands.

One of the most important communications systems used aboard ship is the sound-powered telephone. Without a doubt, sometime in your Navy career you will "man" a sound-powered telephone set. You must become familiar with the proper usage and care of the equipment. In addition, you must learn the correct procedures used with the sound-powered telephone system, including the use of the phonetic alphabet.

THE PHONETIC ALPHABET

It is easy to confuse the sounds of certain letters, such as bee and dee, cee and zee. To avoid confusion,

the navy requires that phonetic equivalents of letters be spoken instead of the letter themselves.

The Navy has had a phonetic alphabet for many years. From time to time, it has been changed in attempts to use words that would instantly bring to mind the letter represented by the word. The accompanying phonetic alphabet was adopted by the armed forces of the various NATO nations as a means of overcoming the many language difficulties. Each word is accented on the capitalized syllable. You should memorize the phonetic alphabet and use it along with correctly pronounced numbers, as described earlier in this chapter, for all telephone and lookout reports.

Phonetic Alphabet

Letter	Equivalent	Spoken
A	ALFA	AL fah
B	BRAVO	BRAH voh
C	CHARLIE	CHAR lee
D	DELTA	DELL ta
E	ECHO	ECK oh
F	FOXTROT	FOKS trot
G	GOLF	GOLF
H	HOTEL	hoh TELL
I	INDIA	IN dee ah
J	JULIETT	JEW lee ett
K	KILO	KEY loh
L	LIMA	LEE mah
M	MIKE	MIKE
N	NOVEMBER	no VEM ber
O	OSCAR	OSS cah
P	PAPA	pah PAH
Q	QUEBEC	kay BECK
R	ROMEO	ROW me oh
S	SIERRA	see AIR rah
T	TANGO	TANG go
U	UNIFORM	YOU nee form
V	VICTOR	VIK tah
W	WHISKEY	WISS key
X	XRAY	ECKS ray
Y	YANKEE	YANG key
Z	ZULU	ZOO loo

SOUND-POWERED TELEPHONES

Sound-powered phones are just what the name implies: phones that operate on your voice power and require no batteries or external electrical power source.

When you speak into the mouthpiece, the sound waves of your voice cause a diaphragm to vibrate. The vibrations are transferred from the diaphragm through a drive rod to an armature centered in a wire coil. The coil is located in a magnetic field supplied by two permanent magnets. Movement of the armature in the magnetic field causes a current to be induced into the coil. The current then is transmitted to a receiver (the earpiece) where the process is reversed, and the person at the other end of the circuit hears the same sounds you transmitted.

The mouthpiece and earpiece, though shaped differently, function in the same manner and thus can be used interchangeably. You can talk into an earpiece and hear through a mouthpiece. This feature is important to remember, not only in the event of a breakdown of one or the other pieces, but also because undesired noises can be fed into the system through an earpiece turned away from your head.

The Headset

Figure 21-9 shows a headset type of sound-powered telephone. The mouthpiece is suspended from a yoke that is attached to a metal breastplate. The earphones are connected by an adjustable band. The mouthpiece and earphone are connected by wire from a junction box on the breastplate. The plug cord is also connected into this junction.

The headset is delicate and can be easily damaged. When you pick up the set to put it on, hold the entire unit in your left hand. You will find the headpiece is hung over the transmitter's supporting yoke and the lead wires are coiled.

To put the gear on, first unhook the right side of the neck strap from the breastplate, put the strap around your neck, and then fasten it to the breastplate again. Second, take off the coil of lead wires; then put the earphones on and adjust the headband so that the center of the earpiece is directly over the opening of the ear. Last, insert the plug into the jackbox and screw the collar on firmly.

Adjust the mouthpiece to bring it directly in front of your mouth when you stand erect. When you speak into the transmitter, it should be about 1/2 to 1 inch from your mouth. In making this adjustment, remember that the fine wire that goes to the transmitter can be broken easily. Be sure it has no sharp bends in it, and do not

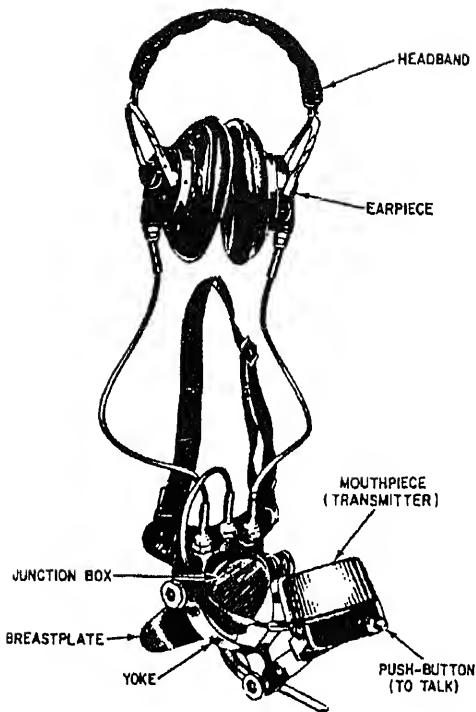


Figure 21-9.—Headset.

allow it to get caught between the transmitter and the yoke.

When you are wearing the headset, always keep some slack in the lead cord and be sure it is flat on deck. If you have the cord stretched taut, someone may trip over it and damage the wires, receive an injury, or injure you. Do not allow objects to roll over or rest on the cord.

After plugging in the phones, test them with someone on the circuit. If the phones are not in order, report that fact to the person in charge of your station and don a spare set; do not attempt to repair the set yourself.

If you are on lookout and should be listening as well as searching, cover only one ear with an earpiece so that you can hear outside noises as well as telephone communications. Keep the unused earpiece flat against the side of your head so that noises will not enter the circuit.

Never secure the phones until you have permission to do so. When permission is given, make up the phones for stowage according to the following instructions.

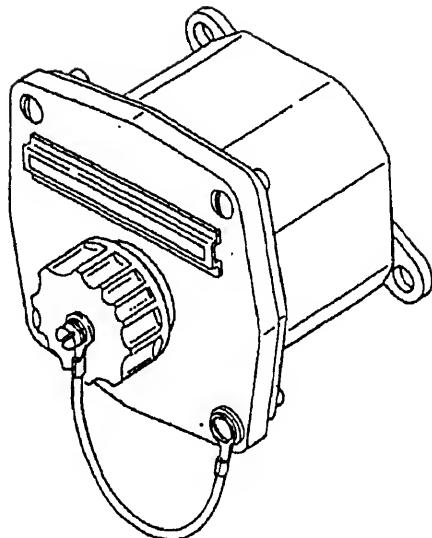


Figure 21-10.—Sound-powered telephone jackbox.

First, remove the plug from the jackbox (fig. 21-10) by holding the plug in one hand and unscrewing the collar with the other. When the collar is loose, grasp the plug and pull it out. Do not pull on the lead to remove the plug; that will weaken and eventually break the connection. When the plug is out, lay it carefully on the deck. Immediately screw the cover on the jackbox, as dust and dirt will soon cause a short circuit in a jackbox that has been left uncovered. If you see an uncovered jackbox, cover it, even though you were not responsible for the carelessness.

Second, remove the headpiece and hang it over the transmitter yoke, as shown in figure 21-11.

Third, coil the lead cord, starting from the end at the phone. Coil the lead in a clockwise direction, holding

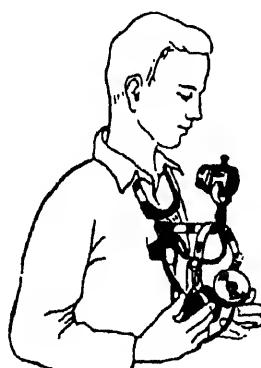


Figure 21-11.—Hanging the headpiece on the yoke.

the loops in one hand, as shown in figure 21-12. The loops should be 8 to 10 inches across, depending on the size of the space where the phones are stowed. When you are coiling the lead, be careful not to bang the plug against the bulkhead or deck.

Fourth, when the lead is coiled, remove the headpiece from the transmitter yoke and put the headband in the same hand with the coil. Use this same hand to hold the transmitter while you unhook one end of the neck strap from the breastplate. Fold the transmitter yoke flat, being careful not to put a sharp bend in the transmitter cord.

Fifth, wrap the neck strap around the coil and the headband two or three times and snap the end back on the breastplate; then fold the mouthpiece up against the junction box. You now have a neat, compact package for stowage, as shown in figure 21-13.

Last, put the phones into the box or hang them on the hook provided. Be careful not to crowd or jam the leads.

Headset phones should always be unplugged when they are not in use. If they are left plugged in, the earpieces will pick up noise and carry it into the circuit. Never place the phones on the deck. Not only is it possible that someone may step on them, but decks are good conductors of noise, which can be picked up by the phones.

The Handset

The handset telephone shown in figure 21-14 is held in one hand with the receiver over one ear and the transmitter in front of the mouth. A button, located on the bar connecting the transmitter and the receiver, is pushed down for talking. (The button must also be depressed to listen.) If the button is held down at other times, all of the noise at the talker's station will go throughout the circuit and make it difficult for other talkers on the line to understand each other.

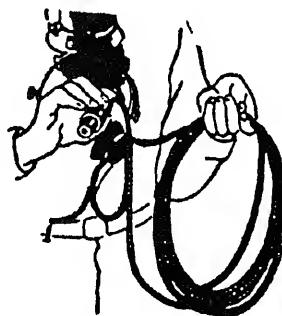


Figure 21-12.—Coiling the lead cord.

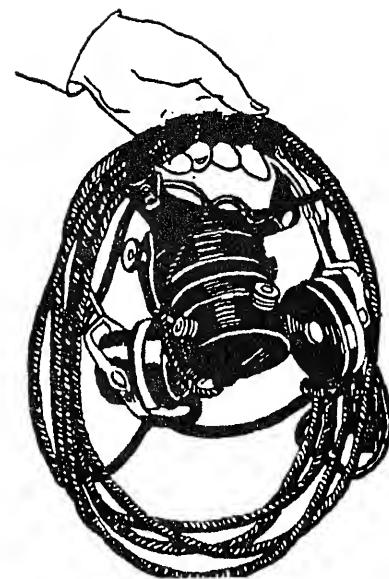


Figure 21-13.—Coiling completed.

When not in use, the handset telephone is held on a bracket on a bulkhead with a lever or spring attachment that keeps it from being jarred loose. When you replace the handset in its bracket, be sure it is secured so that it cannot fall to the deck and be damaged.

SOUND-POWERED CIRCUITS

Sound-powered telephone circuits aboard ship fall into three categories: primary, auxiliary, and supplementary systems.

The primary system includes all circuits necessary for controlling armament, engineering, damage control,

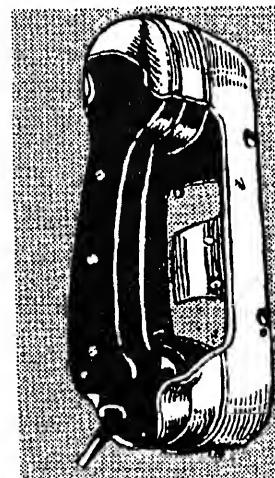


Figure 21-14.—Handset.

maneuvering, and surveillance functions during battle. These circuits are designated JA through JZ.

The auxiliary system duplicates many of the primary circuits for the purpose of maintaining vital communications in the event of damage to the primary system. Auxiliary circuits are separated as much as possible from primary circuits. Circuit designations are the same as the primary system, preceded by the letter X (XJA, X1JV, and so on).

The supplementary system, X1J through X61J, consists of several short, direct circuits, such as from the bridge to the quarterdeck or from the quarterdeck to the wardroom. Circuits in the primary and auxiliary systems can be tied together at various switchboards or individual stations may be cut out of the circuits, but the supplementary system does not have these provisions. Because circuits in the supplementary system usually are not manned, most circuits contain a buzzer system so that one station can alert another station that communications between the two are desired.

Circuit designations are characterized by a letter and number code. The 21JS4 primary battle circuit, for example, is identified as follows: numerals 21 indicate the specific purpose of the circuit; the letter J denotes sound power; the letter S means general purpose (radar, sonar, and ECM information); and the numeral 4 indicates a particular station in the circuit. The same circuit in the auxiliary system is X21JS4. All auxiliary and supplementary circuit designations are preceded by the letter X, but supplementary circuits are easily identified as such because they have no letter after the letter J.

The following are some typical shipboard sound-powered circuits:

- JA – Captain's battle circuit
- JC – Weapons control
- JL – Lookouts
- 21JS – Surface search radar
- 22JS – Air search radar
- 61JS – Sonar information
- 1JV – Maneuvering and docking
- 2JZ – Damage control
- X8J – Replenishment at sea

If you are on a lookout watch, your reports will go over the JL circuit to the bridge and the ship's CIC. On small ships, the JL circuit sometimes is crossed with

another circuit, such as the 1JV, to reduce manning requirements. The bridge talker then has the lookout, CIC, engineering, and after steering (emergency) stations on the same circuit.

TELEPHONE TALKERS

As you undoubtedly realize by now, you probably will stand some form of watch aboard ship as a telephone talker. A ship at sea requires many talkers even during a peacetime cruising watch. In addition to the lookouts, there are talkers on the bridge, in firerooms, and in engine rooms, to mention only a few of the many spaces. To be a good sound-powered telephone talker, you must learn proper telephone procedures.

Sound-powered telephone talkers are essential to the operation of a ship at sea because the ship must have a reliable interior communicating system. Imagine the difficulties the captain would have without means of communication with the engine room, with gunnery stations during battle, or with all the other spaces that help run the ship.

General Telephone Talking Procedures

Because all the power for the phones is generated by your voice, you must speak loudly and clearly if your message is to get through. However, do not shout unnecessarily. Do not run your words together; make every part of your message stand out clearly. Repeat all messages word for word to the intended receiving station; if you try to paraphrase a message, its meaning may be changed.

Never have gum or food in your mouth while you are using the phones. Talk from the front of your mouth, never from the corners. Remember, you must project your voice to every station on the circuit.

You gain nothing by talking too rapidly; a message spoken slowly, so that it is understood the first time, is better than a message spoken so rapidly that it must be repeated.

During an emergency, remember that it is doubly important to get the message through. By talking slowly, some of your own excitement will subside. If you are calm and sure of yourself, you will influence other talkers on the circuit to behave in the same way.

Nearly everyone has a manner of speech that reveals to others what part of the country they are from. On occasion, you may have found it difficult to understand the speech of a person from a certain section of the

country. With this thought in mind, try to speak without local accents.

Circuit Discipline

The sound-powered system resembles a party line—everyone can talk and listen at once. For that reason, strict circuit discipline must be maintained. Otherwise, the circuit will become clogged with private conversation just when someone is trying to transmit an important message.

The rules for circuit discipline are as follows:

1. Transmit only official messages.
2. Keep the button in the OFF position except when actually transmitting.
3. Use only standard words and phrases.

Do not use slang or profanity on the phones. Use correct nautical terms. If naval terminology is new and unfamiliar to you, make it your business to learn the correct terms.

You, as a phone talker, are a very important link in the interior communication chain; that chain is no stronger than its weakest link. Unauthorized talking means there are at least two weak links in the chain. Be efficient. If someone else on your circuit persists in useless talking, remind the person that the line must be kept clear at all times.

Circuit discipline also means you must never show impatience, anger, or excitement. You must talk slowly, clearly, and precisely. Circuit discipline means self-discipline.

Standard Telephone Talking Procedures

Most messages are divided into the following parts:

1. Name of the station called
2. Name of the station calling
3. The message

You call the station for whom you have a message, identify yourself, and send the message without waiting for the receiving station to answer.

When a message is received, it must be acknowledged (receipted for) as soon as it is understood. You acknowledge a message by identifying your station and saying "Aye." "Aye" is not used as an answer to a question; instead, "Affirmative," "Negative," or other appropriate reply is given.

When a message is received, it must be repeated back word for word. An example would be "Catapult center deck, primary; raise the starboard jet blast deflector." The response would be "Primary, catapult center deck; raise the starboard jet blast deflector, aye." The catapult center deck operator would then wait for a few seconds for the primary operator to confirm that the order was understood. The catapult center deck operator would then raise the jet blast deflector.

Communications on the sound-powered phone system will be phrased in the declarative instead of the interrogative. For example, the questions "What is the status of the jet blast deflector?" or "When will the jet blast deflector be repaired?" would be rephrased to "Report the status of the jet blast deflector" and "Report the estimated repair time of the jet blast deflector."

Slang expressions or locally devised codes should not be used. The use of abbreviations should be avoided. Some abbreviations may be easily misunderstood, such as SSTG, SSDG, and SFMG.

When a subordinate station requests permission to carry out an action, do not say, "Permission granted." Another station might think you are giving it permission to carry out some other action. Respond to a request with a direct order. For example, when permission is requested to change phone talkers, the proper response, if approved, would be "Change phone talkers."

If you "belay an order," immediately order what action is needed. For example, when the throttleman is given an order to "Close the throttle" and that order is belayed, then you tell the throttleman what you want him or her to do, such as "Return throttle to original position" or "Open throttle to _____."

Never receipt for a message unless you are sure you understand it. If you do not understand, tell the sender, "Say again." If the message is long and you need only a part of it to be repeated back, you can say, "Say again all after . . ." or "Say again all before . . ."

When you are leaving the circuit for any reason, you must obtain permission from the controlling station. You may be leaving the circuit to change headphones because of a faulty set, to be relieved by someone else, or to secure. In any case, when leaving the circuit, REQUEST PERMISSION.

When a circuit is in use and a station has a more important message to transmit (to report a fire, for example), the talker says, "Silence on the line." Whenever you hear that command, you must

immediately stop talking so that the message can be transmitted.

Examples of Telephone Talker Procedures

The following examples of sound-powered telephone transmissions are representative of the types of messages sent over the phones. Study them until you are sure you have the procedures correct; only practice can make you into a reliable talker.

CIRCUIT TEST.—To find out if telephone stations are manned and ready, the talker at control says, "All stations, control; phone check."

Each talker then acknowledges in assigned order. On a gun circuit it would go like this:

Talker on gun 1:	"Wun, aye."
Talker on gun 2:	"Too, aye."
Talker on gun 3:	"Tree, aye."
Talker on gun 4:	"Fo-wer, aye."

Each station responds in order, but does not wait more than a few seconds for the station immediately preceding to acknowledge. If you are on gun 3, and gun 2 does not respond in a few seconds, you acknowledge and let gun 2 come in at the end. A circuit test is not complete until every person has answered and faults in equipment have been checked.

SENDING.—In sending a message, first call the station you want, and then identify your own station; finally, state the message:

"Foc'sle, bridge; prepare to anchor in five minutes."

"Fantail, bridge; slack off stern line."

RECEIVING.—When receiving a message, first repeat back the message, identify yourself, and then acknowledge the message.

"Prepare to anchor in five minutes; foc'sle, aye."

"Slack off stern line; fantail, aye."

BOTH SENDING AND RECEIVING.—The following are examples of sending and receiving a message:

"Fantail, bridge; report the status of slackening off the stern line."

"Report status of slackening off the stern line; fantail, aye; stern line is slack."

"Main engine control, bridge; report which boilers are on the line."

"Report which boilers are on the line; main engine control, aye; wait."

"Bridge, main engine control; boilers too, tree, and fo-wer on the line."

The Bridge acknowledges receipt of the information:

"Boilers too, tree, and fo-wer on the line; bridge, aye."

REPEATS.—When a message is not clear to the listener at the receiving end, the receiver should say, "Say again." For example, damage control central wants repair two to send a submersible pump to repair three. The central talker says, "Repair two, central; send one submersible pump to repair tree."

Repair two does not understand this message, so the talker there says, "Central, repair two; say again."

Central repeats the message and repair two acknowledges by saying, "Send one submersible pump to repair tree; repair two, aye."

SPELLING.—Difficult words are spelled by using the phonetic alphabet preceded by the prowords (procedural words) "I spell." Pronounce the word before and after spelling it. Example:

"Foc'sle—I spell—FOXTROT OSCAR ROMEO ECHO CHARLIE ALFA SIERRA TANGO LIMA ECHO, Foc'sle."

TEMPORARILY LEAVING THE CIRCUIT.—When a phone talker is relieved by another talker, the phone talker must request permission to change phone talkers. If a talker is exchanging a faulty set of phones for a good set, the phone talker must request permission to change phones.

"Bridge, after steering; request permission to change phone talkers."

"Bridge, combat; request permission to change phones."

Once the talker has been given permission to go off the circuit and the talker rejoins the circuit, the report given is,

"Bridge, combat; back on the line."

SECURING.—Before securing the phones, you must always get permission.

Fantail asks, "Bridge, fantail; request permission to secure."

Bridge says, "Request permission to secure; bridge, aye; wait."

The bridge talker gets permission from the OOD for the person on the fantail to secure, then says, "Fantail, bridge; secure."

Fantail replies, "Fantail, aye; going off the line."

DIAL TELEPHONES

At home, ashore, and at sea, the telephone is a part of everyone's life. It is an important and essential instrument in every Navy office, and you must know how to use it properly. By observing proper techniques, you will be able to give and receive information correctly and quickly. Remember, the success of a telephone conversation depends almost entirely upon your ability to express yourself in words; whereas, when speaking to a person directly, your facial expressions, gestures, and the like, all aid in getting your point across.

Types of Dial Telephones

Different types of dial telephones currently in use are illustrated in figure 21-15. Type A, the desk set, is used in staterooms, cabins, offices, and similar areas. Type F, a bulkhead-mounted telephone, can be used in any station except those on weather decks. It is a nonwatertight unit that should not be exposed to the weather. Type C, a bulkhead-mounted telephone, is a splashproof unit that may be installed on weather decks and other areas exposed to moisture. Type G, a bulkhead-mounted telephone, is interchangeable with type F. It is used aboard surface ships and submarines.

Use of the Dial Telephones

Good telephone technique starts with answering your telephone as promptly as possible. Do not let it ring several times while you finish what you are doing. After lifting the receiver, you should speak immediately to the person calling. Identify yourself when answering the telephone; usually the person making the call will tell you who is calling. This procedure puts the conversation on a business-like basis and eliminates that hazy feeling one has when unsure of the identity of the person on the other end.

Do not go on talking to someone in the office as you answer the telephone. You never know who your caller may be, and information inadvertently given out in this way could be harmful to national security. In addition, it is discourteous to make the caller wait while you finish your office conversation.

When you answer the phone for someone who is absent from the office, give some facts to the person making the call. Do not merely say, "He is not in right now." Rather, tell the caller when you expect the person to return, or volunteer to help if you can. If you have no information concerning the whereabouts of the person called, ask the caller if you may take a message.

Always make sure you have a pencil and pad beside the telephone for taking messages. This practice eliminates needless rummaging about while the other person is holding the line open. Also, it is worth remembering that the message will mean little to the person for whom it is intended unless you leave the following information: (1) name of the caller, (2) the message, (3) time of the message, and (4) your name.

Sometimes you may have to leave the telephone to obtain additional information for a call. When this delay is necessary, you should make it known to the caller. If it takes more time to obtain the required information than you anticipated, give the caller an occasional progress report, such as "I'm sorry I did not find it there. If you do not mind waiting, I will look elsewhere."

When making a telephone call, there are certain rules you should observe. First of all, be sure that the number you dial is the correct one. When you dial wrong numbers, you waste other people's time as well as your own. Second, when making a call to another office, identify yourself immediately. If you make the call for another person or an officer, so inform the person at the other end of the line. This courtesy eliminates the need for the other party to question you in this regard.

If you make a call and are informed that the person called is not in, ask the person answering the telephone to take a message, if appropriate. You should make sure that the person to whom you are speaking understands the message, knows how to spell your name or the name of the person for whom you are making the call, and has your correct telephone number.

The tonal quality of your voice may or may not be subject to improvement. But by enunciating correctly and distinctly and by speaking clearly and unhurriedly, you should have little difficulty in making yourself understood. Do not shout; it probably will not help and is likely to hinder.

Some people become nervous when speaking over the telephone. They take a deep breath, start at the beginning of their notes, and rush through to the end, all in the same breath. Naturally, the person at the other end of the line cannot absorb so much information so quickly, with the result that the whole conversation is

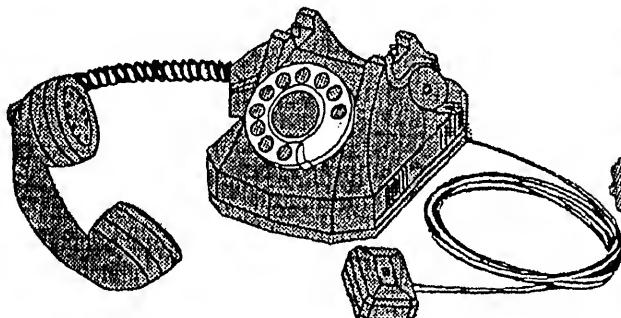
unintelligible. Do not race through a conversation. The person on the other end is just as anxious to hear your information as you are to give it, so avoid the need (and the waste of time) of having to repeat your message.

COMMUNICATION SECURITY

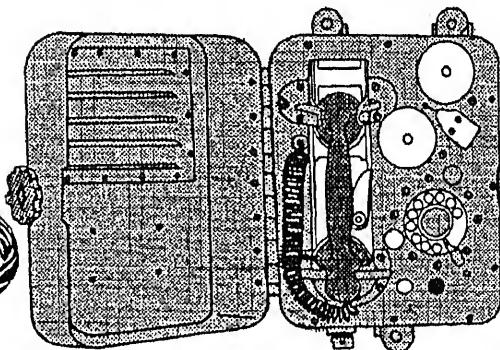
Communication security is defined as the protective measures taken to deny unauthorized persons information derived from telecommunications of the United States government that are related to national

security and to ensure the authenticity of each telecommunication.

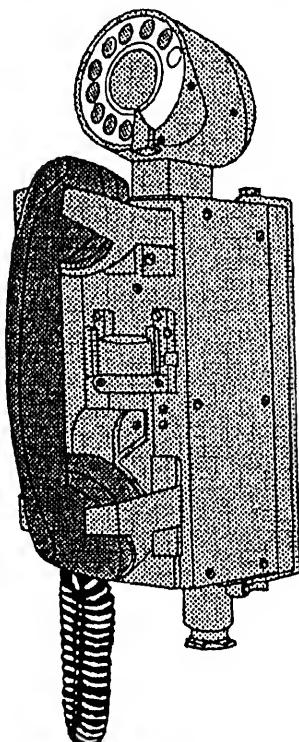
Classified information may not be discussed in telephone conversations except as may be authorized over approved secure communications circuits. When in doubt about the classification of information necessary to answer a question asked in a telephone conversation, you should say nothing. When answering a telephone on a nonsecure communications circuit, you should inform the caller that the telephone is nonsecure.



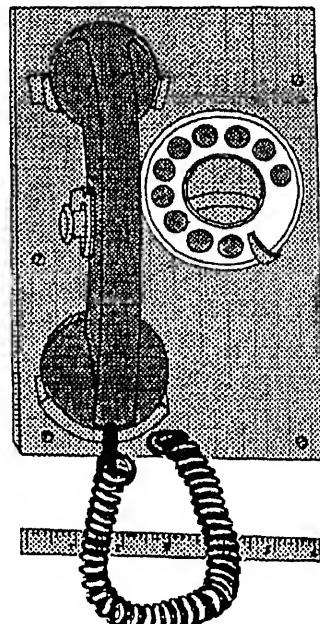
A-TYPE A (DESK SET) TELEPHONE



C-TYPE C (SPLASHPROOF) TELEPHONE



B-TYPE F (BULKHEAD TYPE) TELEPHONE



D-TYPE (G) BULKHEAD TELEPHONE

Figure 21-15 -Telephones

For example: "Quarterdeck, USS *Never Sail*—messenger of the watch speaking, sir—this is a nonsecure telephone."

ANNOUNCING AND INTERCOMMUNICATION SYSTEMS

The general purpose of shipboard announcing and intercom systems, circuits 1MC through 59MC, is to transmit orders and information between stations within the ship by amplified voice communication—by either a central amplifier system or an intercommunication system. A central amplifier system is used to broadcast orders or information simultaneously to a number of stations. An intercom system is used for two-way transmission of orders or information.

General Announcing System

The basic MC circuit is the 1MC shown in figure 21-16. This is the general announcing system, over which word can be passed to every space in the ship. The ship's alarm system is tied into it as well. Transmitters are located on the bridge, quarterdeck, and central station; additional transmitters may be located at other points.

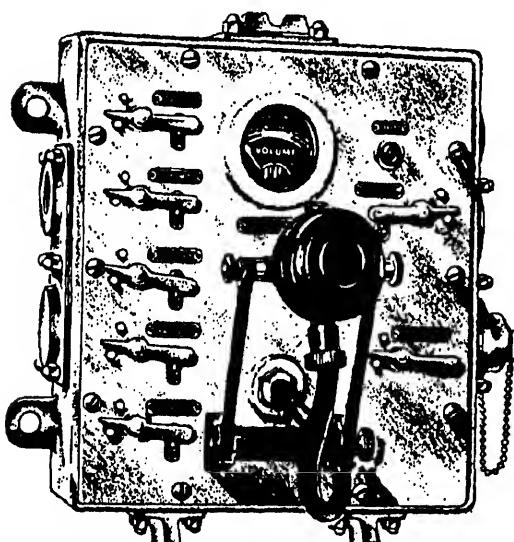


Figure 21-16.—Loudspeaker transmitter.

Table 21-1. Shipboard Announcing Systems

CIRCUIT	SYSTEM
1MC	General
2MC	Propulsion plant
3MC	Aviators'
4MC	Damage Control
5MC	Flight Deck
6MC	Intership
7MC	Submarine Control
8MC	Troop administration and control
9MC	Underwater troop communication
18MC	Bridge
19MC	Aviation Control
21MC	Captain's Command
22MC	Electronic Control
23MC	Electrical Control
24MC	Flag Command
26MC	Machinery Control
27MC	Sonar and Radar Control
29MC	Sonar Control and Information
30MC	Special Weapons
31MC	Escape truck
32MC	Weapons Control
35MC	Launcher Captains'
39MC	Cargo Handiing
40MC	Flag Administrative
42MC	CIC Coordinating
43MC	Unassigned
44MC	Instrumentation Space
45MC	Research operations
46MC	Aviation Ordnance and Missile Handling
47MC	Torpedo Control
49MC	Unassigned
50MC	Integrated operational intelligence center
51MC	Aircraft Maintenance and handling control
52MC	Unassigned
53MC	Ship Administrative
54MC	Repair officer's control
55MC	Sonar Service
56MC	Unassigned
57MC	Unassigned
58MC	Hangar Deck Damage Control
59MC	SAMID Alert

The OOD is in charge of the 1MC. No call may be passed over it unless it is authorized by the OOD, the executive officer, or the captain, except for a possible emergency call by the damage control officer.

Normally, the 1MC is equipped with switches that make it possible for certain spaces to be cut off from announcements of no concern to them. The captain's cabin for instance, should not be blasted with calls for individuals to lay down to the spud locker. The BMOW is responsible for passing the word over the 1MC. If the BMOW is absent and you are required to pass the word yourself, be sure you know which circuits should be left open. Some parts of the ship have independent MC circuits of their own, such as the engineers' announcing system (2MC) and the hangar deck announcing system (3MC).

The bullhorn (6MC) is the internship announcing system, but it seldom is used for actual communication between vessels. It is, however, a convenient means for passing orders to boats and tugs alongside or to line-handling parties beyond the range of the speaking trumpet. If the transmitter switch is located on the 1MC control panel, you must be careful to avoid accidentally cutting in the bullhorn when you are passing a routine word.

The 1MC, 2MC, 3MC, and 6MC are all one-way systems. A partial list of loudspeaker systems is presented in table 21-1.G

Intercoms

Such MC circuits as the 21MC, commonly known as "squawk boxes," differ from the preceding PA systems in that they provide two-way communications. Each unit has a number of selector switches. To talk to one or more stations, you only need to position the proper switches and operate the PRESS-TO-TALK switch. A red signal light mounted above each selector switch shows whether the station is busy. If it is busy, the light flashes; if it burns with a steady light, you know that the station is ready to receive.

The following is an example of how to operate the intercom. You are on the signal bridge at the 24MC transmitter (fig. 21-17), and you want to call conn. First, you push the selector button marked CONN on the designation plate. We will assume the line is clear for your message, which means that a steady red light appears over the signal bridge selector button at the conn transmitter. When the operator at conn pushes the signal bridge button, the signal lights at both stations begin to flash. Now you can operate the PRESS-TO-TALK

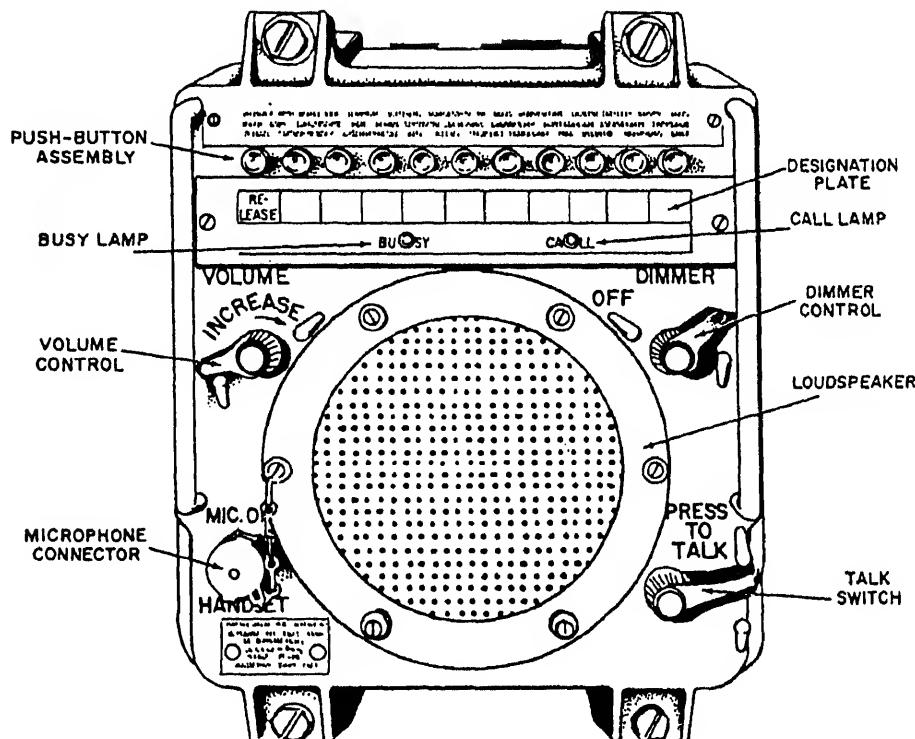


Figure 21-17.—A 24MC transmitter.

switch and start your message. Any other station attempting to cut in gets the flashing busy signal.

The chief disadvantage of the intercom is that it raises the noise level in any space in which it is located. For this reason, it seldom is used when sound-powered telephones are manned. Intercom circuits, which may be located on the bridge, are identified briefly as follows:

The 20MC, combat information announcing system, connects the same stations as the 1JS phones.

The 21MC, captain's command announcing system, is an approximate parallel to the JA phones.

The 22MC, radio room announcing system, is a substitute for the JX phones.

The 24MC, flag officer's command announcing system, is the intercom equivalent of the JF phones.

FLAGS AND PENNANTS

Flags and pennants serve various functions throughout the world. They have identified nations, governments, rank, and ownership and have conveyed messages for centuries. This section introduces flags and pennants that identify persons and ships and transmit information and orders. On special occasions, flags are used as a decoration, such as "dress ship."

The Navy uses the international alphabet flags; numeral pennants and a code/answer pennant; a set of numeral flags, special flags, and pennants; and four substitutes, or repeaters.

Each alphabet flag has the phonetic name of the letter it represents. A numeral flag takes the name of the numeral it represents; numeral pennants are used only in call signals. Special flags and pennants are used in tactical maneuvers to direct changes in speed, position, formation, and course; to indicate and identify units; and for specialized purposes. Flags and pennants are spoken and written as shown in figures 21-18 and 21-19.

Emergency and Administrative Signals

The following flags and pennants represent only a few of the thousands of signals that can be transmitted by flag hoist. Since they may be frequently seen displayed aboard Navy ships or stations, it would be to your advantage to learn to identify them and understand their meaning. Your own personal safety may someday depend on recognizing a particular signal flag.

The following list contains only those international signals most commonly used and having the same meaning as Navy signals:

EMERGENCY/WARNING FLAGS

ALFA: (International) I have a diver(s) down; keep well clear at slow speed.

BRAVO: (International) I am taking in, discharging, or carrying dangerous materials.

MIKE 1: This ship has medical guard duty.

MIKE 2: This ship has dental guard duty.

NOVEMBER CHARLIE: (International) I am in distress.

OSCAR: Man overboard.

FLAG FIVE: Breakdown; the vessel is having engine or steering difficulty.

ADMINISTRATIVE FLAGS

HOTEL: (International) The ship has a harbor pilot on board.

INDIA: Preparing to come alongside in port or at anchor.

JULIETT: I have a semaphore message to transmit.

PAPA: General recall; all personnel return to the ship.

QUEBEC: Boat recall; all boats return to the ship.

ROMEO: In port; flown by the ship having READY DUTY. At sea; flown by the ship PREPARING TO REPLENISH.

SIERRA: Holding flag hoist drill.

YANKEE: The ship has visual communications duty.

FIRST SUBSTITUTE: Indicates the absence of the flag officer or unit commander whose personal flag or pennant is flying on the ship.

SECOND SUBSTITUTE: Indicates the absence of the chief of staff.

THIRD SUBSTITUTE: Indicates the absence of the captain. If the captain is absent over 72 hours, it indicates the absence of the executive officer.

SUMMARY

In this chapter we covered the basic fundamentals of the watch organization and outlined some of the procedures associated with standing a proper watch. We

FLAG and NAME	Spoken	Written	FLAG and NAME	Spoken	Written	FLAG and NAME	Spoken	Written
 A	ALFA	A	 M	MIKE	M	 Y	YANKEE	Y
 B	BRAVO	B	 N	NOVEMBER	N	 Z	ZULU	Z
 C	CHARLIE	C	 O	OSCAR	O	 1	ONE	1
 D	DELTA	D	 P	PAPA	P	 2	TWO	2
 E	ECHO	E	 Q	QUEBEC	Q	 3	THREE	3
 F	FOXTROT	F	 R	ROMEO	R	 4	FOUR	4
 G	GOLF	G	 S	SIERRA	S	 5	FIVE	5
 H	HOTEL	H	 T	TANGO	T	 6	SIX	6
 I	INDIA	I	 U	UNIFORM	U	 7	SEVEN	7
 J	JULIETT	J	 V	VICTOR	V	 8	EIGHT	8
 K	KILO	K	 W	WHISKEY	W	 9	NINE	9
 L	LIMA	L	 X	XRAY	X	 Ø	ZERO	Ø

PENNANT and NAME	Spoken	Written
	PENNANT ONE	p1
	PENNANT TWO	p2
	PENNANT THREE	p3
	PENNANT FOUR	p4
	PENNANT FIVE	p5
	PENNANT SIX	p6
	PENNANT SEVEN	p7
	PENNANT EIGHT	p8
	PENNANT NINE	p9
	PENNANT ZERO	p0
TACK LINE	TACK	

PENNANT or FLAG	Spoken	Written	PENNANT or FLAG	Spoken	Written
	CODE or ANSWER			NEGAT	NEGAT
	SCREEN	SCREEN		PREP	PREP
	CORPEN	CORPEN		PORT	PORT
	DESIG. NATION	DESIG		SPEED	SPEED
	DIV	DIV		SQUAD	SQUAD
	EMERGENCY	EMERG		STARBOARD	STBD
	FLOT	FLOT		STATION	STATION
	FORMATION	FORM		SUBDIV	SUBDIV
	INTER. ROGATIVE	INT		TURN	TURN

SUBSTITUTES

	1st. SUBSTITUTE	FIRST SUB		3rd. SUBSTITUTE	THIRD SUB
	2nd. SUBSTITUTE	SECOND SUB		4th. SUBSTITUTE	4th.

Figure 21-19.—Numeral pennants, special flags and pennants.

also covered the importance of communications in relation to watch-standing duties. Having well-trained and competent watch standers would be useless without a means of relaying information. In addition, we introduced flags and pennants. This form of communications has existed for centuries and is still widely used in the Navy of today.

Every person in the Navy has, at one time or another, been assigned some type of watch. Your safety, and that of your shipmates, depends on how well you execute these duties. Just one moment of inattention could mean the difference between a shipmate that has fallen overboard being recovered or lost. A minute of "slacking off" as a fog lookout may be the difference in reaching home port safely or being involved in a collision at sea. No watch is more or less important than others. Every watch on board your ship or station is interdependent.

The safety of all crew members depends upon each watch stander carrying out his or her assigned duties in a proper military fashion.

REFERENCES

Boatswain's Mate, Volume 1, NAVEDTRA 10101, Naval Education and Training Program Management Support Activity, Pensacola Fla., 1989.

Quartermaster 3, NAVEDTRA 10157, Naval Education and Training Program Management Support Activity, Pensacola, Fla., 1985.

Standard Organization and Regulations of the U.S. Navy, OPNAVINST 3120.32B, Department of the Navy, Office of the Chief of Naval Operations, Washington, D.C., 1986.

CHAPTER 22

SECURITY REQUIREMENTS

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Describe the principles for classifying, downgrading, and upgrading classified material.
2. Define the procedures and security requirements needed for access to classified material.
3. Describe the various classified material markings.
4. Describe the procedures and requirements for safeguarding classified material.
5. Explain the security requirements and procedures for dissemination of classified material.
6. Explain the procedures and principles involved in applying for personnel clearances.
7. Describe the basic security requirements concerning classified information and material.
8. Describe the procedures and security requirements for disposal of classified material.
9. Describe the procedures and requirements for destruction of classified material.
10. Describe the procedures and requirements for automated data processing (ADP) security.
11. Describe the procedures pertaining to compromise of classified material.
12. Explain required procedures when dealing with security violations.
13. Describe the procedures for reporting counterintelligence matters to the Naval Investigative Service.

There is no way of estimating how many battles have been lost, how many ships have been sunk, or how many lives have been sacrificed because someone intentionally or unintentionally betrayed a military secret.

—Author unknown

Security, as discussed here and in most Navy training manuals, means the safeguarding of classified information in the interest of national security. The safety of the United States in general and naval operations in particular depends greatly on the protection of classified material.

However, you should remember that security involves more than classified printed information—photographs, blueprints, manuals, charts, and so on. Security also includes such forms of communications as mail, visual signals, radio

transmissions, ship movements, or telephones. It includes anything that affects the security of our government in domestic and foreign affairs. It involves protection against sabotage, espionage, subversion, or any other illegal acts designed to weaken or destroy the United States.

Because what you have just read can never be taken lightly, it is important that you understand what classified information is, its importance, and how to safeguard it.

SECURITY CLASSIFICATION

All information or material that is considered vital to the safety of the United States is given a security classification. Only one of three security classifications can be assigned to classified material: TOP SECRET, SECRET, or CONFIDENTIAL.

Each security classification indicates the amount of protection the information and material requires to safeguard it against unauthorized disclosure.

The authority to originally classify information as Top Secret, Secret, or Confidential rests with the Secretary of the Navy and his or her designees. These designees are listed in the *Department of the Navy Information and Personnel Security Program Regulation*, OPNAVINST 5510.1H.

TOP SECRET

Top Secret classifications apply to information or material requiring the highest degree of protection, the unauthorized disclosure of which could reasonably be expected to cause exceptionally grave damage to the national security. Examples include armed hostilities against the United State or its allies; disruption of foreign relations vitally affecting the national security; the compromise of vital national defense plans or complex cryptologic and communications intelligence systems; the revelation of sensitive intelligence operations; and the disclosure of scientific or technological developments vital to national security.

SECRET

Secret classifications apply to information that if disclosed to unauthorized persons could reasonably be expected to cause serious damage to the national security. Examples include disruption of foreign relations significantly affecting the national security; significant impairment of a program or policy directly related to the national security; revelation of significant military plans or intelligence operations; and compromise of significant scientific or technological developments relating to national security.

CONFIDENTIAL

Confidential classifications apply to information that if disclosed to unauthorized persons could reasonably be expected to cause damage to the national security. Examples include information indicating the strength of ground, air, and naval forces and performance characteristics, test data, design, and production data on U.S. weapons systems and munitions.

FOR OFFICIAL USE ONLY

For information that does not warrant one of the three security classifications, the marking of For Official Use Only (FOUO) is used. Although this marking is not concerned with the safety of the United States, the category For Official Use Only is just what

it says. Only those persons whose official duty requires the use of this material may have access to it. Examples of For Official Use Only material include the plan of the day, instructions, charts, logs, investigations, and personnel records. This unclassified marking and others such as Limited Official Use or Sensitive must never be used to identify classified material in any form.

SECURITY CLEARANCES

Personnel in about half of the ratings in the Navy require some degree of access to classified information. Since clearances are granted only in the interest of national security, an investigation is conducted to determine the person's loyalty, integrity, and trustworthiness.

You must have, and maintain, a good record to receive and keep a security clearance. Bad conduct, such as excessive drinking, gambling, promiscuity, and poor credit, can lead to withholding of the clearance. A clearance may also be denied, withheld, or withdrawn because of emotional disturbance, general inaptitude, drug abuse, or general disciplinary causes.

A security clearance is granted or denied by your commanding officer based on your need to know and if you meet the standards for the level of clearance required.

A Confidential clearance may be granted to you on completion of a review of your personnel, health, and legal records at the command level. For you to receive a clearance of Top Secret or Secret, you must undergo a background investigation by a federal agency. Of course, the higher the level of classification required, the more thorough the investigation. You will be asked questions about your military and civilian history. They must be answered completely and correctly.

Having a clearance does not automatically grant you access to classified information; it only means you may be granted access if your duties require such information.

Security clearances and access to classified information are based on a "need to know" concept. Only those personnel who have a genuine need to know are officially cleared. The responsibility for determining whether a person actually requires access to classified material rests with the command possessing the material. If you have been cleared to work with classified material, keep what you learn to yourself. The following guidelines will assist you in safeguarding classified material:

- Never reveal classified information just to show your shipmates how smart you are or to act important; if they do not need to know the information to carry out their duties, do not tell them anything.

- Don't talk about classified information to unauthorized persons, including family, friends, shipmates, and especially strangers. Classified information can be revealed unintentionally to unauthorized persons in many ways.

- Don't talk too freely. It is natural to talk with shipmates, but classified subjects should be avoided. The fact that you may be entrusted with certain classified information gives you no right to divulge it to anyone else.

- Interest in your own job is natural and desirable, but it must not lead you to reveal classified information to unauthorized persons. Never add to a news story that appears to be incomplete, no matter how much you may know. By doing so, you may make public exactly what the Navy has tried to keep secret.

The Commander, Naval Security and Investigative Command, under the Chief of Naval Operations, is responsible for implementing and complying with Navy policy regarding the security of classified information. Commanding officers are responsible for safeguarding classified information within their commands. That does not relieve you of the requirement to safeguard any classified information you may possess, no matter how you came by it.

MARKING OF CLASSIFIED MATERIAL

The purpose of marking classified material is to make sure personnel are aware of the classified nature of the subject; to ensure it receives the degree of protection required; and to assist in extracting, paraphrasing, downgrading, and declassification actions. Therefore, all classified material must be marked in a manner that leaves no doubt about the level of classification assigned, which parts contain or reveal classified information, how long the material must remain classified, and additional measures necessary to protect the material.

Security markings are located where they are easily seen and recognized. On documents, the classification is marked (usually stamped) in capital letters larger than the type used in the text. On other types of material, the classification is indicated by whatever means are suitable (tag, sticker, decal, and so on). Titles of classified documents usually are unclassified. In any

case, the classification is indicated by a letter in parentheses immediately following the title: (U) for Unclassified, (C) for Confidential, (S) for Secret, and (TS) for Top Secret.

Classified materials such as documents, films, charts, plans, and publications are clearly marked with the highest level of classification for the classified matter it contains. For example, a publication containing both Confidential (the lowest classification) and Top Secret (the highest classification) would be clearly marked or stamped Top Secret.

Each portion, section, part, paragraph, or subparagraph of a classified document must be marked to show the level of classification or to show that the portion, section, part, paragraph, or subparagraph is unclassified. This requirement means a document will be marked to eliminate any uncertainty as to which of its portions contains or reveals information that must be protected. The classification level of a portion of a document is shown by a classification symbol. The symbol is placed immediately following the portion letter or numbers and immediately before the beginning of the portion. The symbols in parentheses must be used. For example:

1. (U) This introductory sentence is Unclassified.
 - a. (C) This subparagraph is Confidential.
 - (1) (S) This subparagraph is Secret.

Whenever classified documents are mailed, they are enclosed within two opaque containers. The inner container has the address of the receiving activity and the classification of the contents. The outer container has the receiver's address and the sender's return address. Markings that might reveal the nature of the contents are never permitted on the outer container. A receipt, which lists the classified contents and which is returned to the sender, is enclosed in or attached to the inner container.

Details on the marking, storage, or shipment of various types of classified matter, such as messages, tapes, films, charts, and equipment, are contained in the *Department of the Navy Information and Personnel Security Program Regulation*, OPNAVINST 5510.1H, or they may be obtained from your supervisor.

DOWNGRADING AND DECLASSIFICATION

Security markings also provide for the downgrading and declassification of classified material. Downgrading means a lower degree of protection is required than before, but the material is still classified

and must be protected. Declassification means that protection of the material is no longer required in the interest of national security.

SECURITY AREAS

Spaces that contain classified material are known as security areas. The areas have varying degrees of restriction of access and control of movement, depending on the nature of the work, information, or materials concerned. To meet different levels of security sensitivity, the government has established three types of security areas: level I, level II, and level III. All such areas have clearly defined boundaries and are clearly marked by signs warning unauthorized personnel to keep out.

LEVEL I

A level I area does not contain classified information. This area serves as a buffer zone to provide administrative control, safety, and protection for level II or level III areas.

A security clearance normally is not required for access to a level I area, but a personal identification and control system is necessary to limit admittance to those who have an actual need to enter the area.

So that their relative sensitivity may not be outwardly determined, level I, level II, and level III areas are not marked as such. Each of these areas is clearly marked Restricted Area.

LEVEL II

A level II area is one in which uncontrolled movement of personnel would permit access to classified information. Access to the information may be prevented, however, by escort and other internal controls. Entrances and exits are guarded or controlled by attendants who check personal identification.

All persons admitted to a level II area with freedom of movement (such as operating and maintenance personnel) must have the proper security clearance. The commanding officer may authorize the admittance of persons who do not have the necessary clearance, but in all such instances they must be escorted or other security measures taken to prevent unauthorized access to the classified information.

LEVEL III

A level III area contains classified information of such a nature that merely being in the area constitutes access to the information. Level III areas, therefore, require the strictest control of access.

All entrances and exits are guarded or secured, and a system of positive identification of personnel is required. Only persons whose duties actually require access and who have appropriate security clearances are allowed in a level III area.

AUTOMATED DATA PROCESSING (ADP) SECURITY

Each command involved in processing data in an automated system is responsible for safeguarding data processing equipment and related resources. These resources include hardware, software, administrative and operating procedures, communications, and personnel. The ADP security program will protect ADP activities, office information systems, and networks.

The management of the ADP security system is continuously monitored and reviewed for effectiveness. The *ADP Security Manual*, OPNAVINST 5239.1A, contains a complete description of ADP security policies and procedures.

COMPROMISE OF CLASSIFIED MATTER

The compromise of classified information presents a threat to national security—the degree of which depends upon the nature of the material. Compromise is a loss of security as a result of unauthorized persons gaining knowledge of classified information through loss, theft, capture, salvage, defection of an individual, unauthorized viewing of the material, or by any other means. Subjection to compromise results when the material may have become available to unauthorized persons.

If you know that material has been compromised or subject to compromise, report the facts immediately to your superiors. If you should find classified documents in a place where they should not be, such as lying in the street or on a beach (such findings have happened), turn them in to your superior or to the nearest military activity.

A security violation is any failure to comply with regulations concerning the security of classified

material but which does not result in compromise or subjection to compromise.

If you find an unattended open or unlocked safe or container in which classified material is stowed, a security violation has been committed; you must report the discovery immediately to the senior duty officer. You then guard the material until the duty officer arrives. After inspecting the material, the duty officer will lock the safe. If it is believed the material may have been compromised, the duty officer will have the person responsible for the material return and make a detailed inspection.

PERSONAL CENSORSHIP

One form of classified material that cannot be physically safeguarded is the information you carry around in your head. You are the only person who can prevent its disclosure. You must constantly be on guard to prevent revealing classified information—either in conversation or in writing.

A wartime slogan that still is effective is "Loose lips sink ships." Indiscriminate talk, even to a person who has the same knowledge you have, may be overheard by unauthorized persons. We all like to talk about our ships, our jobs, and our travels; but when we do, we should make certain we do not include classified information in our conversations.

Loose talk in public places can be especially damaging. Intelligence agents are trained to collect bits of seemingly harmless information. Putting all the bits together might produce a comprehensive file of classified information.

Never discuss classified information over telephones, as they constitute one of the least secure systems of communication. Telephones are subject to wiretapping—both physically and electronically. Long-distance circuits often use microwave radio transmission, which is easily intercepted. The use of homemade or unauthorized codes, double-talk, or an attempt to talk around a classified subject provides no protection against trained intelligence personnel.

The methods used by foreign intelligence agents may take many forms. An agent could be male or female, young or old, or of any national origin or background. They exist in our everyday lives as ordinary people. They could use blackmail or make threats toward you or members of your family. They may take the friendly approach and offer you friendship, money, or other things of value. They may promise to assist your

relatives living in a foreign country. They may offer any number of things in return for classified material or bits of information that to you may seem unimportant. Always remember that people who deal in espionage are experts in dealing with people.

REPORTING SUBVERSIVE ACTIVITIES

Whether you have access to classified material or not, you must report to your commanding officer anyone you suspect is involved with espionage or sabotage or is compromising classified material. This information should be reported through your chain of command. If you are approached by a stranger asking inappropriate questions when you are on leave or liberty and you cannot contact your chain of command, report this information to the nearest military activity.

As you can see, being security conscious and following security standards and requirements is a big responsibility. However, maintaining proper security can be accomplished if you realize that security really is a personal concern.

TERRORISM

Terrorism is the unlawful use or threatened use of force or violence against individuals or property with the intention of coercing or intimidating governments or societies. Terrorism is used for political, religious, or ideological purposes. Acts of terrorism directed against naval personnel, activities, or installations have the potential to destroy critical facilities and to injure or kill personnel. Terrorism may also be used to delay accomplishment of missions and to cause incalculable damage through adverse publicity and public perception of incident handling and results.

Terrorist methods of operations are varied and may include bombs, ambush, armed attack, sabotage, or the taking of hostages. The two most publicized methods are bombings and hostage taking. The method generally used in connection with military forces is bombing. There have been rare instances when naval or military personnel have been members of a hostage group as a result of the highjacking of an aircraft or some other mode of transportation. Military personnel, and particularly naval personnel, are often stationed in or visit foreign countries. Some of these countries, mostly European and Mediterranean, have significant terrorist activity.

Indications and warnings of terrorist activity against naval installations or personnel are normally received from U.S. security authorities or through the security

agencies of host countries. These warnings usually come in the form of threat conditions (THREATCONS). Threat conditions range from THREATCON ALPHA (the lowest degree of readiness) to THREATCON DELTA (the highest degree of readiness). Each threat condition contains several measures that must be adopted before that degree of readiness is fully set. When stationed in or visiting foreign countries, you will receive a brief concerning the threat condition in force at that time.

When visiting foreign countries, you must be constantly aware of what is going on around you. The actions of terrorist groups are rarely advertised. Terrorists normally choose places of business that have a high volume of target personnel present. These places of business range from airports to night clubs. You should be especially vigilant at night, when the cover of darkness helps the terrorist hide his or her activities. Be alert and notice anything out of the ordinary and report it to the proper authorities. This action could identify a possible terrorist operation.

Although the occurrence of terrorist attacks within the United States is rare, terrorist action on American soil is possible. The same levels of awareness that you practice when visiting foreign countries are necessary here as well. Being alert when you are on or around military installations could mean the difference between the success or failure of a terrorist operation.

SUMMARY

Security of classified material is serious business. Potential enemies are always looking for a chance to gain access to our most guarded secrets. Just one day of failing to safeguard classified material could result in the compromise of extremely sensitive material. The security of classified material not only rests with the

personnel that have access to it on a daily basis, but includes every member of a command. We all have a duty to ensure that only the people requiring access to classified material are allowed to see or use it. The same is true of how we discuss our daily routine. Even if you don't have access to classified material on a daily basis, you could possibly have knowledge of certain exercises or deployment times that would be of benefit to potential enemies. Think carefully before you start talking about upcoming events. Every person in the room is not cleared to have this type of information. Putting pieces of information together to determine what is happening is easy for foreign agents. The same is true when talking on the telephone. Very few phones aboard ship and almost none in the civilian community are secure. Electronic eavesdropping is another way foreign agents collect intelligence data. Be careful what you say; someone other than the person you called could be listening.

Terrorist activity, particularly when you are visiting a foreign country, should always be of concern. While you should not let it interfere with your enjoyment of visiting a foreign country, you must always be alert to what is going on around you. By taking an extra few minutes to survey your surroundings, you could identify a potentially hazardous situation.

REFERENCES

Department of the Navy Information and Personnel Security Program Regulation, OPNAVINST 5510.1H, Office of the Chief of Naval Operations, Washington, D.C., 1988.

Standard Organization and Regulations of the U.S. Navy, OPNAVINST 3120.32B, Office of the Chief of Naval Operations, Washington, D.C., 1986.

CHAPTER 23

INTERNATIONAL AGREEMENTS

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to do the following:

1. Define the general provisions of the Status of Forces Agreement.
2. Recognize the rules provided for by the Geneva Convention.
3. Identify the Law of Armed Conflict.

Many agreements are made between the government of the United States and governments of other countries. Some of the agreements that directly affect you are discussed in this chapter. These international agreements are the Status of Forces Agreement (SOFA), the Geneva Convention, and the Law of Armed Conflict.

During your tour of duty in the Navy, you will have the opportunity to visit other countries. You may visit as a member of a ship's company, or you may be assigned to a duty station overseas. In either case, remember that you are a guest of the country you are visiting. A small percentage of people feel because they are members of the U.S. Navy, local laws do not apply to them. That is not true. If you are on leave or liberty in a foreign country, you must obey the laws of that country.

STATUS OF FORCES AGREEMENT

It is the policy of the Department of Defense to protect your rights as much as possible if you are subjected to criminal trial by foreign courts. To do that, the United States has entered into an agreement with several of our allied countries. That agreement is called the Status of Forces Agreement (SOFA). The SOFA says, in part, that the host country will give up some of its jurisdiction to the visiting country in some criminal and civil cases. The main purpose of the SOFA is to clearly define the status of military personnel of one country stationed in the territory of another. Some of the topics covered by the Status of Forces Agreement are as follows:

- Freedom of troop movement within the host country

- Passport requirements
- Criminal jurisdiction
- Taxes
- Imposition of customs duties
- Regulations covering driver's licenses
- Exchange privileges

These are just a few of the items covered by the SOFA. (Provisions of the SOFA vary from country to country.) Remember, when you are overseas, YOU are the foreigner. Many customs of the host country may seem strange to you, but you must abide by them as well as the local laws. You should receive a briefing on the Status of Forces Agreement that pertains to the country you are visiting. If you have any questions concerning the SOFA while you are in a foreign country, consult your division officer.

GENEVA CONVENTION

As a prisoner of war (POW), you have certain rights and are required to observe certain rules, as established by the Geneva Prisoners of War Convention of 1949. The Geneva Convention prescribes that prisoners be treated humanely at all times and that they be protected against insults and public curiosity. It prescribes decent housing, nourishing food, and adequate clothing for prisoners. It also states that POWs must be permitted to communicate with their families. Prisoners are to be given medical care, allowed to worship, and allowed to exercise and participate in sports and intellectual pastimes. Punishment for refusing to answer questions

other than your name, date of birth, rate, and social security number is prohibited by the Geneva Convention.

A prisoner must salute enemy officers and may be required to perform work if such work is not related to military operations. POWs are subject to the laws, regulations, and orders of the armed forces of the captors and may be punished for violating them. The Geneva Convention recognizes the prisoner's right to try to escape by limiting punishment for such attempts to disciplinary action only, which may consist of 2 hours extra duty daily, loss of half a month's pay (earned as a prisoner), stoppage of any extra privileges, and confinement. A prisoner may not be punished more severely for repeated escape attempts. Prisoners of war are prohibited from renouncing any of the rights to which they are entitled under the Geneva Convention.

Most countries of the world abide by the articles of the convention. North Vietnam agreed to the convention in 1957 but violated most of its provisions. In 1965 Hanoi violated the convention by announcing the execution of three American POWs in retaliation for the legal execution of Viet Cong terrorists. The Communists also paraded handcuffed Americans through the streets of Hanoi where they were subjected to ridicule and humiliation by the people. The Geneva Convention expressly forbids such actions. Evidence also indicates that Iraq violated some articles of the convention during the Persian Gulf crisis.

If you have contact with enemy prisoners of war, you should treat them according to the articles of the Geneva Convention, just as you would expect to be treated by them. If you should become a POW, you should conduct yourself according to the Code of Conduct as well as the Geneva Convention.

LAW OF ARMED CONFLICT

Every nation calls upon its military personnel to defend its national interests by going to war. Our country believes those people involved in armed conflict during war are entitled to fundamental human rights regardless of their conduct or beliefs. Because of this belief, our nation has adopted the Law of Armed Conflict to govern the conduct of its military forces engaged in fighting.

Because naval operations frequently involve fighting between major units, many of you do not require a detailed knowledge of the Law of Armed Conflict. However, you need a basic knowledge of it, since even in large-scale naval operations some people may violate the Law of Armed Conflict.

Small-scale operations require a more detailed knowledge of the Law of Armed Conflict by the naval personnel involved. You will receive this detailed knowledge if the need arises.

As a member of a military force, you are allowed during periods of hostilities to attack and even kill the lawful combatants of your enemy. Generally speaking, the term lawful combatants means members of a military force (with certain exceptions such as corpsmen, medics, and chaplains) and civilian personnel engaged in hostilities.

Just as the Law of Armed Conflict permits certain hostile actions, it limits the manner in which you may conduct these actions. It provides for the protection of certain targets in a war zone to safeguard people and property not directly involved with military activity. For example, it expressly forbids attacking or firing on nonmilitary targets not being used by the enemy for military purposes. The use of illegal techniques and tactics, such as rape, pillage, and plunder, is also prohibited. Unlawful techniques and tactics can backfire on the user because often they are dangerous in themselves. They are also likely to enrage the enemy. The enemy may then fight harder or respond by using illegal methods, such as killing POWs. Personnel who violate the Law of Armed Conflict will find themselves in serious trouble, including the possibility of trial by court-martial.

The fundamental terms of the Law of Armed Conflict are as follows:

1. Fight only enemy combatants.
2. Destroy no more than your mission requires.
3. Do not attack enemy soldiers, sailors, airmen, or marines who surrender. Disarm them and turn them over to your superior.
4. Never torture or kill prisoners of war and other detainees.
5. Collect and care for wounded, sick, or shipwrecked survivors, whether friend or enemy, on land or at sea.
6. Protect medical personnel and chaplains, medical and religious facilities, and medical transportation of the enemy. Treat them with respect and do not attack them.
7. Treat all civilians humanely and respect their property. Do not attack them.

8. Do your best to prevent any violation of these fundamental rules. Report any violations to the appropriate authority promptly.
9. Do not violate these rules; an order to do so is illegal.

Discipline yourself to obey these rules during combat. Disobedience of the Law of Armed Conflict dishonors your nation, the Navy, and you. Far from weakening the enemy's will to fight, such disobedience strengthens it. Disobedience of the Law of Armed Conflict is also a crime punishable under the *Uniform Code of Military Justice*.

SUMMARY

The international agreements discussed in this chapter were designed to protect members of the armed

forces. The Status of Forces Agreement protects you when you are stationed or visiting foreign countries. The Geneva Convention affords you protection if you become a POW. The Law of Armed Conflict protects you in the event of a war. The articles and rules of these agreements will only protect you if you conduct yourself according to U.S. and international law. You have a duty to conduct yourself in a manner that will not bring discredit upon your country, your service, or yourself.

REFERENCES

Law of Armed Conflict (Law of War) Program To Insure Compliance by the Naval Establishment, SECNAVINST 3300.1A, Department of the Navy, Office of the Secretary, Washington, D.C., 1988.

APPENDIX I

GLOSSARY

Upon entering a new occupation, a person usually is faced with a need to learn the vocabulary of the trade to understand and be understood by his or her co-workers. The Navy, especially, has a language all its own.

This glossary is printed for your convenience. You may notice the absence of some common Navy terms, as the glossary is not intended to be all-inclusive.

Naval Warfare Publication 3 (Revision E), *Naval Terminology* is an excellent source of information for the definitions of naval terms and acronyms.

AA—Abbreviation for antiaircraft.

ABAFT—Farther aft, as "Abaft the beam."

ABEAM—On a relative bearing of 90 degrees (*abeam* to starboard) or 270 degrees (*abeam* to port).

ABOARD—In or on a ship. Extended to use ashore, as *aboard* a naval station.

ABREAST—Same as abeam.

ACCOMMODATION LADDER—A ladder suspended over and inclining down the side of a ship to enable people to board the ship from boats.

ADRIFT—Loose from moorings and out of control. Applied to anything that is lost, out of hand, or left lying about.

AFT—Toward the stern. Not as specific as abaft.

AFTER—That which is farthest aft, as *after* fireroom.

AFTERNOON WATCH—The 1200 to 1600 watch.

AGROUND—When any part of a ship or boat is resting on the bottom. A ship runs *aground* or goes *aground*.

AHOY—A hail or demand for attention, as "Boat *ahoy*."

ALEE—In the direction toward which the wind is blowing; downwind.

ALIVE—Lively, energetic.

ALL FAST—Tied or lashed down as necessary.

ALL HANDS—The entire ship's company.

ALOFT—Generally speaking, any area above the highest deck.

ALONGSIDE—By the side of the pier or ship.

AMIDSHIPS—An indefinite area midway between the bow and the stern. *Rudder amidships* means that the rudder is in line with the ship's centerline.

ANCHOR—(1) Any device used to make a floating body fast to the bottom. (2) The act of so making fast. (3) The act of securing or fixing the lower end of a guy or stay or the lower end of a shore.

ANCHORAGE—An area designated to be used by ships for anchoring.

ANCHOR BALL—A black circular shape hoisted to indicate that the ship is anchored.

ANCHOR BUOY—A small float secured to the anchor by a light line to mark the position of the anchor.

ANCHOR CABLE—The line, wire, or chain that attaches a vessel to its anchor.

ANCHOR WATCH—A group of persons available to the OOD during the night for such duties as heaving in or paying out the cable.

ANNUNCIATOR—A device, usually electro-mechanical, used to indicate or transmit information. See Engine Order Telegraph.

ARMAMENT—The weapons of a ship.

ARMORED DECK—A deck, below the main deck, that provides added protection to vital spaces.

ASTERN—Directly behind a ship.

ATHWART—Across; at right angles to.

AUXILIARY—(1) Extra, or secondary, as *auxiliary* engine. (2) A vessel whose mission is to supply or support the combatant forces.

AVAST—Stop, as "*Avast* heaving."

AYE AYE—Reply to a command or order, meaning "I understand and will obey."

BACK—(1) To go backwards. (2) Act of the wind in changing direction counterclockwise.

BACKSTAY—Piece of standing rigging leading aft.

BAIL—(1) To rid a boat of water by dipping it out. (2) A rigid member affording support at two end points, as the *bail* (handle) of a bucket or the support for an accommodation ladder.

BALLAST—Weight (solid or liquid) loaded into a ship to increase stability.

BAR—A long, narrow shoal across a harbor entrance.

BARBETTE—A heavily armored cylinder extended downward from a gun turret to the lowest armored deck to provide protection to the turret below the gun house and the projectile- and powder-handling crews.

BARGE—(1) A blunt-ended, flat-bottomed, waterborne craft, usually non-self-propelled, used to haul supplies or garbage. (2) A type of motorboat assigned for the personal use of a flag officer.

BARNACLES—Small shellfish that are found attached to bottoms of vessels, pilings, and other submerged structures.

BATTEN—(1) A long strip of steel wedged against the edges of tarpaulins on a hatch to make the hatch watertight. (2) Removable wood or steel members used in a ship's holds to keep cargo from shifting.

BATTEN DOWN—The act of applying battens to a hatch. Extended to mean the closing of any watertight fixture.

BATTLE LANTERN—A battery-powered lantern for emergency use.

BEAM—(1) The extreme breadth of a vessel. (2) A transverse frame supporting a deck.

BEAR—The act of locating a particular point, or bearing, as "The lighthouse *bears* 045 degrees."

BEAR A HAND—(1) Provide assistance, as "Bear a hand with rigging this stage." (2) Expedite, as in "Bear a hand with readiness for sea reports."

BEARING—The direction of an object from an observer, measured in degrees clockwise from a reference point. *True bearing* is the angular difference between lines drawn from the observer to true north and to the object; *magnetic bearing* is the direction of the object measured on a magnetic compass; *relative bearing* is the angle between the ship's head and the object.

BECKET—(1) An eye for securing one end of a line to a block. (2) A rope eye on a cargo net. (3) Shortened form of becket bend.

BECKET BEND—A knot used to tie two lines together.

BELAY—(1) To secure a line to a fixed point. (2) Order to disregard a previous order or to stop an action, as "Belay the last order," or "*Belay* the small talk."

BELOW—Downward, beneath, or beyond something, as to lay *below*; *below* the flight deck; *below* the horizon.

BEND—To join two lines together; the type of knot so used.

BERTH—(1) Bunk. (2) Duty assignment. (3) Mooring space assigned to a ship.

BIGHT—The middle part of a line, or a loop in a line.

BILGE—(1) Bottom of the hull near the keel. (2) To fail an examination. (3) *Bilge* water is foul water, so to apply the term to something implies that it is worthless.

BILGE KEEL—A keel attached to the outside of a ship's hull, near the turn of the bilge, to reduce rolling.

BILLET—Place or duty to which one is assigned.

BINNACLE—Stand containing a magnetic compass.

BINNACLE LIST—List of persons excused from duty because of illness.

BITT—Cylindrical upright fixture to which mooring or towing lines are secured aboard ship.

BITTER END—The free end of a line.

BLOCK—A frame containing a pulley, called a sheave, around which a line (known as a fall) is attached.

BLOCK AND TACKLE—See Purchase.

BOARD—(1) The act of going aboard a vessel. (2) A group of persons meeting for a specific purpose, as an investigation board.

BOAT—A small craft capable of being carried aboard a ship.

BOAT BOOM—A spar rigged out from the side of an anchored or moored ship to which boats are tied when not in use.

BOAT FALLS—Tackle used to hoist and lower a boat in davits.

BOATHOOK—A staff having a hook at one end. Used for fending a boat off, hooking a line, etc.

BOATSWAIN'S CHAIR—A seat attached to a gantline for hoisting a person aloft.

BOATSWAIN'S LOCKER—A compartment, usually forward, where line and other equipment used by the deck force are stowed.

BOLLARD—A strong, cylindrical upright fixture on a pier to which a ship's mooring lines are secured.

BOOM—A spar used for hoisting loads; usually movable.

BOOT TOPPING—Black paint applied to a ship's sides along the waterline.

BOW—The forward end of a ship or boat.

BOW HOOK—Member of a boat's crew whose station is forward.

BREAK OFF—To walk away with a line or run a line in, let go, return to the point from which the line is being hauled, take a new hold, and walk away again.

BREAK OUT—To bring out supplies or equipment from a storage space.

BREAST LINE—Mooring line leading from the ship to the pier at right angles to the ship.

BRIDGE—Area in the superstructure from which a ship is operated. See Conn.

BRIDLE—A span of rope, chain, or wire with both ends secured and the strain taken on the midpart.

BRIG—Naval term for jail.

BROACH TO—To get crosswise (without power) to the direction of wave travel; particularly dangerous near a beach.

BROAD—Wide, as *broad* in the beam.

BROAD ON THE BOW—Halfway between dead ahead and abeam.

BROAD ON THE QUARTER—Halfway between abeam and astern.

BROADSIDE—(1) The act of firing all main battery guns to one side at once. (2) Sidewise, as "The current carried the ship *broadside* toward the beach." *Broadside to* is to have the side toward something, as "The ship hit the pier *broadside to*."

BROW—Navy term for gangplank. Used as a crosswalk from one ship to another and from a ship to a pier.

BULKHEAD—A vertical partition in a ship; never called a wall.

BULKHEADING—Complaining or grumbling with the intention of being overheard by seniors.

BULLNOSE—A closed chock at the bow.

BULWARK—Solid barrier along the edges of the weather deck that serves as a protection against bad weather.

BUOY—An anchored float used as an aid to navigation or to mark the location of an object.

CABIN—Living compartment of a ship's commanding officer.

CABLE—A line, wire, or chain that connects a ship to its anchor.

CAISSON—Gate at the end of a drydock that keeps out the water.

CALL—(1) The boatswain's pipe. (2) A signal sounded on the boatswain's pipe.

CAMEL—Large timber or rectangular structure used as a fender between a ship and the pier.

CAN BUOY—A navigational buoy, cylindrical in shape, that marks the port side of a channel from seaward; odd-numbered and painted green.

CANOPY—A cover fitted over part of a boat.

CAPSTAN—That part of a vertical shaft windlass around which a working line is passed; used for heaving in anchors and hawsers.

CARRICK BEND—A knot used for joining two lines. The single carrick bend is seldom used because it jams tight; instead, a double carrick bend is used, particularly for bending towing hawsers together.

CARRY AWAY—To break loose, as "The rough seas *carried away* the lifelines."

CAULK—The act of stuffing the seams between wooden planking with oakum for watertightness.

CHAFING GEAR—Material used to protect lines from excessive wear.

CHAIN LOCKER—Space where anchor chain is stowed.

CHAIN MARKINGS—A series of turns of wire and stripes of paint on certain links of each anchor chain. They show the scope or amount of chain that has run out.

CHAINS—Area (a platform on large ships) where the leadsmen stands when taking soundings with the hand lead.

CHART—Nautical counterpart of a road map, showing land configuration, water depths, and aids to navigation.

CHECK—(1) To slow or ease; to *check* a line is to pay out just enough line to prevent its parting when under a strain. (2) To investigate or examine something.

CHEEK—One of the sides of a block.

CHOCK—Deck fitting through which mooring lines are led.

CHOW—Food.

CHRONOMETER—An accurate clock used in navigation.

CHURCH PENNANT—A blue and white pennant flown above the ensign during church services on board a Navy ship.

CLAMP DOWN—To sprinkle the deck with water and dry it with a swab.

CLEAT—A metal casting with two projecting arms to which a line is belayed.

COAMING—Bulwark around a hatch opening.

COFFERDAM—A void between compartments or tanks of a ship for purposes of insulation.

COIL—To lay down a line in circular turns piled loosely on top of one another.

COLLISION BULKHEAD—A bulkhead, stronger than normal, located forward to control flooding in the event of a head-on collision.

COLORS—(1) The national ensign. (2) The ceremony of raising and lowering the ensign.

COMBATANT SHIP—A ship whose primary mission is combat.

COMMISSION PENNANT—A long, narrow pennant with stars and stripes; flown only aboard a commissioned ship.

COMPANIONWAY—Deck opening giving access to a ladder (includes the ladder).

COMPARTMENT—Interior space (room) in a ship.

COMPLETE DECK—Any deck that extends the length of a ship from side to side.

CONN—Station, usually on the bridge, from which a ship is controlled; the act of controlling the ship's movements.

COURSE—A ship's desired direction of travel, not to be confused with heading, which is the direction in which the bow is pointed at any given instant.

COVER—(1) To protect. (2) A shelter. (3) Headgear, and the act of donning same.

COXSWAIN—Enlisted person in charge of a boat.

DARKEN SHIP—To turn off all external lights and close all openings through which lights could be seen from outside the ship.

DAVITS—A crane or mechanical arms which project over the side of a ship and are used to lower or hoist a boat in or out of the water.

DEAD AHEAD—Directly ahead; a relative bearing of 000 degrees. *Dead astern* is 180 degrees relative.

DEAD IN THE WATER—Said of a ship that has stopped and has no way on, or no movement through the water.

DECK—Horizontal planking or plating that divides a ship into layers.

DECK SEAMANSHIP—The upkeep and operation of all deck equipment.

DEEP SIX—To throw something overboard.

DIP—The act of lowering a flag partway down the staff as a salute to, or in reply to a salute from, another ship.

DISTANCE LINE—A line stretched between two ships engaged in replenishment or transfer operations underway. The line is marked at 20-foot intervals to aid the conning officer in maintaining station.

DIVISION—(1) A main subdivision of a ship's crew (1st, E, G, etc.). (2) An organization composed of two or more ships of the same type.

DOCK—Commonly refers to any pier or wharf; but, strictly speaking, it refers only to the space alongside a pier or in drydock.

DOG—(1) A lever or a bolt and thumbscrews used for securing a watertight door. (2) The act of dividing a 4-hour watch into 2-hour watches.

DOG DOWN—To set the dogs on a watertight door.

DOG WATCH—The 1600 to 1800 and 1800 to 2000 watches.

DOLPHIN—(1) A cluster of piles at the end of a pier. (2) A porpoise.

DOUBLE UP—To double mooring lines for extra strength.

DRAFT—The vertical distance from the keel to the waterline.

DRAFT MARKS—The figures fastened to the stem and stern, the center of which indicates the draft of the ship.

DRIFT—The speed at which a ship is pushed off course by wind and current.

DROGUE—See Sea Anchor.

DRYDOCK—A dock from which the water may be removed for the purpose of inspecting or working on a ship's bottom; it may be either floating or built into the shore.

EASE—To relax, to slack.

EASE HER—Reduce the amount of rudder the ship is carrying.

EBB, EBB TIDE, ON THE EBB—A falling tide.

EIGHT O'CLOCK REPORTS—Reports received shortly before 2000 by the executive officer from the heads of departments.

ENGINE-ORDER TELEGRAPH—Electromechanical device that transmits orders to the engine room concerning the speed of the engines.

ENSIGN—(1) The national flag. (2) The lowest grade of commissioned officer.

EYES—The most forward part of the forecastle.

FAIRLEAD—A device, usually a block, for leading a line around a corner.

FAIRWAY—Thoroughfare for a ship.

FALL—A line, wire, or chain rove on a purchase.

FANTAIL—The after end of the main deck.

FATHOM—Unit of measurement equal to a depth of 6 feet.

FENDER—A cushioning device hung over the side of a ship to prevent contact between the ship and the pier or another ship.

FID—A long, tapered, wooden tool used to open the strands of a line for splicing.

FIELD DAY—A day devoted to general cleaning, usually in preparation for an inspection.

FIREMAIN—Piping system to which fire hydrants are connected.

FIRST WATCH—The 2000 to 2400 watch. Also called evening watch.

FIRST CALL—A routine call sounded as a warning signal for roll call formations and many other ceremonies; also sounded 5 minutes before morning and evening colors.

FISHHOOK—A broken end of wire protruding from a wire rope.

FLAG OFFICER—An officer of the rank of rear admiral or higher.

FLAGSTAFF—Vertical staff at the stern to which the ensign is hoisted when moored or at anchor.

FLAT—Partial deck (often a grating) to provide walking and working surfaces; used extensively in engineering spaces.

FLEET—An organization of ships, aircraft, Marine forces, and shore-based fleet activities, all under one commander, for the purpose of conducting major operations.

FLOOD—(1) To fill a space with water. (2) Arising tide.

FOGY—(Pronounced fo-gee.) A longevity pay increase.

FORE—Forward.

FORE AND AFT—The entire length of a ship, as in "Sweep down *fore and aft*."

FORECASTLE—(Pronounced fok-sul.) Forward section of the main deck, generally extending from the stem aft to just abaft the anchor windlass.

FOREMAST—First mast aft from the bow.

FORENOON WATCH—The 0800 to 1200 watch.

FORESTAY—A stay leading forward.

FOUL—(1) Entangled, as "The lines are *foul* of each other." (2) Stormy.

FOUNDER—To sink because of being overwhelmed by the sea.

FRAME—The athwartship strength member of a ship's hull.

FRAPPING LINES—Lines passed around boat falls to steady the boat when hoisting or lowering.

FREEBOARD—Vertical distance from waterline to weather deck.

GAFF—A light spar set at an angle from the upper part of a mast, from which the ensign is flown when a ship is under way.

GALLEY—Space where food is prepared. Never called a kitchen.

GANGWAY—(1) The opening in a bulwark or lifeline to provide access to a brow or an accommodation ladder. (2) Given as an order, it means "Clear the way."

GANTLINE—Line used for hoisting and lowering a boatswain's chair.

GENERAL ALARM—A sound signal of a pulsating ringing tone used only on board ship for calling all hands to general quarters.

GENERAL QUARTERS—The condition of full readiness for battle.

GIG—Boat assigned for the commanding officer's personal use.

GIRDER—A longitudinal supporting a deck.

GRANNY KNOT—A bungled square knot.

GRAPNEL—A small, four-armed anchor used to recover objects in the water.

GRIPE—Device for securing a boat at its davits or in a cradle.

GROUND TACKLE—Equipment used in anchoring or mooring with anchors.

GUNWALE—(Pronounced gunnel.) The upper edge of the sides of a ship.

GUY—A line used to steady a spar or boom.

HALF DECK—A partial deck below the main deck.

HALYARD—A light line used to hoist a flag or pennant.

HAND—A ship's crew member.

HANDSOMELY—Slowly and carefully.

HARD OVER—Condition of a rudder that has been turned to the maximum possible rudder angle.

HASHMARK—(Service stripe.) A red, blue, or gold diagonal stripe across the left sleeve of an enlisted person's jumper or coat; each stripe indicates 4 years' service.

HATCH—A square or rectangular access in a deck.

HAUL OFF—Changing a vessel's course to keep clear of another vessel.

HAWSEPIPE—Opening through which the anchor cable runs from the deck out through the side of the ship.

HAWSER—Any heavy wire or line used for towing or mooring.

HEAD—(1) The upper end of a lower mast boom. (2) Compartment containing toilet facilities. (3) Ship's bow.

HEADING—The direction toward which the ship is pointing at any instant.

HEAVE—To throw.

HEAVE AROUND—(1) The act of hauling in a line, usually by means of a capstan or winch. (2) General term for "Get to work."

HEAVE IN—Take in line or cable.

HEAVE OUT AND TRICE UP—Announcement given at reveille to persons sleeping in hammocks. It meant, "Get up and lash up your hammocks." This term now applies to ships equipped with bunks.

HEAVE TO—Stopping or reducing headway of a vessel just enough to maintain steerageway.

HEAVING LINE—A line with a weight at one end that is heaved across an intervening space for the purpose of passing over a heavier line.

HELM—Mechanical device used to turn the rudder; usually a wheel aboard ship; a lever in boats.

HELMSMAN—Person who steers the ship by turning the helm.

HIGHLINE—The line stretched between the ships underway on which a trolley block travels back and forth for transfer of material and personnel.

HITCH—(1) Used to bend a line to or around a ring or cylindrical object. (2) Common term for an enlistment.

HOLD—Large cargo stowage space aboard ship.

HOLDING BULKHEAD—The innermost of a series of bulkheads that form the tanks and voids of the torpedo protection system.

HOLIDAY—Space on a painted surface that the painter neglected to cover.

HOOK—Familiar term for the anchor.

HOUSE—The act of two-blocking (pulling up tight) an anchor in its hawsepipe.

HULL—The shell, or plating, of a ship from keel to gunwale.

HULL DOWN—Refers to a ship that is so far over the horizon that only its superstructure or top hamper is visible.

INBOARD—Toward the centerline.

INHAUL LINE—Line used to haul the trolley back to the delivering ship during highline transfers.

INLET—A narrow strip of sea extending into the land.

INNER BOTTOM—The inside bottom in a system of double bottoms.

INSHORE—Close to the shore.

IRISH PENNANT—Loose, untidy end of line left adrift. Also called deadman or cow's tail.

ISLAND—Superstructure on starboard side of the flight deck of an aircraft carrier.

JACK—Starred blue flag (representing the union of the ensign) flown at the jackstaff of a commissioned ship not underway.

JACKSTAFF—Vertical spar at the stem to which the jack is hoisted.

JACKSTAY—Any horizontal line or wire for the support of articles (such as seabags).

JACOB'S LADDER—A portable rope or wire ladder.

JETTY—A structure built out from shore to influence water currents or to protect a harbor or pier.

JUMP SHIP—The act of deserting a ship.

JURY RIG—Any makeshift device or apparatus.

KAPOK—Material used to stuff life jackets and other lifesaving apparatus.

KEDGE—(1) A small anchor. (2) The act of moving a ship by hauling it ahead by heaving in on a line to a laid-out anchor.

KEEL—The lowermost longitudinal strength member from which the frames and plating rise.

KEEL BLOCK—One of a series of blocks along a drydock bed; used to support the keel of a vessel in drydock.

KEELSON—That part of a boat's keel which is inside the boat.

KING POST—One of a pair of short, strong uprights used to support the cargo booms of cargo vessels.

KING SPOKE—Spoke on the steering wheel that is upright when the rudder is amidships; usually distinctively marked, as with a Turk's head.

KNOCK OFF—Quit working.

KNOT—(1) A unit of measurement of speed equal to one nautical mile (6,080 feet) per hour. (2) A collective term for hitches and bends.

LADDER—A shipboard flight of steps.

LANDING CRAFT—Vessel especially designed for landing troops and equipment directly on a beach.

LANDING SHIP—A large seagoing ship designed for landing large numbers of personnel and/or heavy equipment directly on a beach.

LANYARD—(1) Any short line used as a handle or as a means for operating some piece of equipment. (2) A line used to attach an article to the person, as a pistol lanyard.

LASH—To secure an object by turns of line, wire, or chain.

LASHING—Line, wire, or chain used to lash an article.

LASH-UP—An uncomplimentary term applied to a rig, device, or system meaning it is in disorder. For example, "What a *lash-up* they have there."

LAUNCH—(1) To float a vessel off the ways in a building yard. (2) A power boat, usually over 30 feet long.

LAY—(1) To go to a specific place, such as "*Lay aloft*." (2) To put something down, as to *lay tile*. (3) The direction of twist of the strands in a line or wire.

LEAD LINE—A narrow block of lead weighing from 7 to 14 pounds attached to a marked line. Used by leadsmen to determine depth of water.

LEADSMAN—Person who uses the lead line.

LEE—An area sheltered from the wind; downwind.

LEE HELMSMAN—Formerly referred to that one of two helmsmen who stood on the lee side of the wheel. Now refers to a spare helmsman who usually operates the annunciator.

LEE SHORE—A shore that is leeward of the ship.

LEEWARD—(Pronounced loo-urd). Side of the ship opposite the direction from which the wind is blowing.

LIBERTY—Permission to be absent from a ship or station for a short time.

LIE OFF—To heave to at some distance from shore.

LIFE BUOY—A buoyant ring or some other floating device, except a life jacket or life belt, designed to support a person in the water.

LIFE JACKET—A buoyant jacket designed to support a person in the water; a life belt fits only around the waist.

LIFELINE—(1) In general, the lines erected around the edges of weather decks. Specifically, the topmost line. From top to bottom, the lines are named lifeline, housing line, and foot rope. (2) A safety line bent to a person going over the side or aloft.

LIGHTEN SHIP—To make a ship lighter by removing weight.

LIGHT SHIP—The act of dispensing with blackout precautions.

LINE—Any rope that is not wire rope.

LOG—(1) A ship's speedometer. (2) The act of a ship in making a certain speed, as "The ship *logged* 20 knots." (3) Book or ledger in which data or events that occurred during a watch are recorded.

LOOK ALIVE—Admonishment meaning "be alert" or "move faster."

LOOKOUT—Person stationed topside as a formal watch who reports all objects sighted and sounds heard to the OOD.

LOOM—The glow seen in the sky from a light that is below the horizon.

LUBBER'S LINE—Line engraved on the inside of a compass bowl, representing the ship's head, by which the ship's course is steered.

LUCKY BAG—Locker, under the charge of the master-at-arms, used to stow gear found adrift and deserters' effects.

MAGAZINE—Compartment used for the stowage of ammunition.

MAIN DECK—The uppermost complete deck.

MAINMAST—Second mast aft from the bow.

MAN—To assume a station, as to *man* a gun.

MAN-O-WAR—See Combatant Ship.

MARLINE—Two-strand, left-laid, tarred hemp.

MARLINESPIKE—Tapered steel tool used to open the strands of wire for splicing.

MARLINESPIKE SEAMANSHIP—The art of caring for and handling all types of line and wire.

MASTER-AT-ARMS—A member of a ship's police force.

MASTHEAD LIGHT—A 20-point, white running light located in the fore part of the ship. May or may not be on the forecastle.

MATE—A shipmate; another sailor.

MEET HER—Slow the swing of a ship by putting on opposite rudder.

MESS—(1) Meal. (2) Place where meals are eaten, as *mess* hall. (3) A group of personnel who take meals together, as the officers' *mess*.

MESSENGER—(1) A line used to haul another heavier line across an intervening space. (2) One who delivers messages.

MIDWATCH—The watch that begins at 0000 and ends at 0400.

MIND YOUR RUDDER—An order to the helmsman to steer the proper course.

MONKEY FIST—A complicated knot worked into the end of a heaving line to provide weight.

MOOR—(1) To anchor, using two anchors. (2) To make fast to a mooring buoy. (3) To make fast to a pier or another ship.

MOORING BUOY—A large, anchored float to which a ship may moor.

MORNING WATCH—The 0400 to 0800 watch.

MOTOR WHALEBOAT—A double-ended powerboat.

MUSTER—(1) A roll call. (2) The act of assembling for a roll call.

NEST—(1) Two or more boats stowed one within the other. (2) Two or more ships moored alongside each other.

NOTHING TO THE RIGHT (LEFT)—Order given to the helmsman not to allow the ship to come to right (left) of the course because of some danger lying on that side of the course.

NUN BUOY—A navigational buoy, conical in shape, that marks the starboard side of a channel from seaward. Even numbered and painted red.

OAKUM—Tarred hemp fiber used to caulk seams in wooden decks and boats.

OOD—Officer of the deck.

OFFSHORE—Some distance off the shore, as contrasted to inshore.

ON THE BEACH—Ashore; also applied to a sailor who is assigned to shore duty or is unemployed, retired, or otherwise detached from sea duty.

OUTBOARD—Away from the centerline.

OVERBOARD—Over the side.

OVERHAND KNOT—Simplest of all knots; made by passing one end of a line once around its standing part.

OVERHAUL—(1) To repair or recondition. (2) To overtake another vessel.

OVERHEAD—The underside of a deck forming the ceiling of the compartment below. Never called a ceiling.

PAINTER—Line used to make a boat fast by its bow. When used underway, the *painter* causes the boat to swing out from the side of the ship.

PARCEL—The act of wrapping a line with narrow canvas strips to provide waterproofing or to build up a symmetrical shape for further covering.

PARTY—A group having a common temporary assignment or purpose, as working *party*, line-handling *party*, liberty *party*.

PASSAGEWAY—A corridor used for interior horizontal movement aboard ship.

PAY—Monthly salary.

PAY OUT—To feed out, or lengthen, a line.

PELORUS—A gyrocompass repeater used to take bearings.

PIER—Structure extending from land out into the water to provide a mooring for vessels.

PIER HEAD—Seaward end of a pier.

PIGSTICK—Small staff from which the commission pennant is flown.

PILOTHOUSE—Enclosure on the bridge housing the main steering controls.

PILOTING—Branch of the science of navigation in which positions are determined by reference to visible objects on the surface or by soundings.

PIPE—The act of sounding a particular call on the boatswain's pipe.

PITCH—Vertical rise and fall of a ship's bow caused by head or following seas.

PLAIN WHIPPING—A whipping made without using a palm and needle.

POLLIWOG—A person who has never crossed the equator.

PORT—To the left of the centerline when facing forward.

PROTECTIVE DECK—See Armored Deck.

PROW—That part of the stem (bow) above the waterline.

PURCHASE—A machine that is a combination of one or more blocks rove with a line or wire. When rove with chain, called a chain fall.

PYROTECHNICS—Ammunition containing chemicals that produce smoke or a brilliant light when burning; used for signaling or for illumination.

QUARTER—Area between dead astern and either beam.

QUARTERDECK—Deck area designated by the commanding officer as the place to carry out official functions; the station of the OOD in port.

QUARTERMASTER—An enlisted assistant to the navigator.

QUARTERS—(1) Stations for shipboard evolutions, as general *quarters*, fire *quarters*, *quarters* for muster. (2) Living spaces.

QUAY—(Pronounced key.) A solid structure along a bank used for loading and off-loading vessels.

RADAR—A device that uses reflected radio waves to detect objects.

RANGE—(1) The distance of an object from an observer. (2) An aid to navigation consisting of two objects in line. (3) A water area designated for a particular purpose, as a gunnery *range*.

RAT GUARD—A hinged metal disk that can be secured to a mooring line to prevent rats from using the line to gain access to the ship.

RAT-TAILED STOPPER—A braided tapering line used on boat falls, mooring lines, etc.

the attachment of a hose of smaller diameter than the hydrant outlet.

REEF—An underwater ledge rising abruptly from the floor of the ocean.

REEVE—To thread a line through a pulley.

RELIEF—Person assigned to assume the duties of another.

RELIEVE—(1) To take the place of another. (2) To ease the strain on a line.

RIDE—A ship at anchor *rides* to its anchor as it swings on the chain attached to the anchor.

RIDING LIGHT—Light required to be shown by a vessel at anchor.

RIG—To set up any device or equipment, as *rig* a stage over the side.

RIGGING—Lines that support a ship's masts are called standing *rigging*; those used to hoist or otherwise move equipment are called running *rigging*.

RISER—A pipe leading from the firemain to fireplugs on upper deck levels.

ROLLER CHOCK—A mooring chock that contains a roller for reducing friction.

ROPE—General reference to both fiber and wire rope. Fiber rope usually is referred to as line; wire rope is called rope, wire rope, or just wire.

ROPE YARN SUNDAY—Free time given during a workday (usually an afternoon) to allow personnel to take care of personal business.

RUDDER—Device attached to a ship's stern that controls the ship's direction of travel.

RUNNER—A purchase containing one single-sheave movable block.

RUNNING BOWLINE—A slipknot made by tying a small bowline around a line's own standing part.

RUNNING LIGHTS—Navigational lights required to be shown at night by a vessel underway.

SACK—Bunk.

SCUPPER—The waterway along the gunwales.

SCUTTLE—(1) Round, watertight opening in a hatch. (2) The act of deliberately sinking a vessel.

SCUTTLEBUTT—(1) Originally a ship's water barrel (called a butt), which was tapped (scuttled) by the

drinking water; now applied to any drinking fountain. (2) In the old days the scuttlebutt was a place for personnel to exchange views and news when they gathered to draw their water; hence the term *scuttlebutt* is applied to any rumor.

SEA—(1) The ocean in general. (2) The individual undulations of the surface are called waves, but as a whole they are referred to as *seas*. Also, a ship takes a big *sea*, not a wave, over the bow.

SEA ANCHOR—A device streamed from the bow of a vessel for the purpose of holding it end-on to the sea.

SEAMANSHIP—(1) The art or skill of handling a vessel. (2) Skill in the use of deck equipment, boat handling, and the care and use of line and wire.

SEAWORTHY—A vessel capable of withstanding normal heavy weather.

SECOND DECK—First complete deck below the main deck.

SECURE—(1) To make fast, as to *secure* a line to a cleat. (2) To cease, as to *secure* from fire drill.

SERVICE FORCE—The organization providing logistic support to the combatant forces.

SET—The direction toward which a ship is pushed by the effects of wind and current. See Drift.

SET UP—To tighten up, with particular reference to dogs and turnbuckles.

SHAKE A LEG—An admonishment to move faster.

SHAKE DOWN—The training of a new crew to develop efficiency in operating a ship.

SHEAVE—Pulley in a block around which the fall (line) runs.

SHEER STRAKE—The uppermost strake in a ship's side plating.

SHEET BEND—Same as Becket Bend.

SHELL—A vessel's hull plating from the keel to the main deck; also called skin.

SHELLBACK—A person who has crossed the equator.

SHIFT—(1) The act of the wind in changing direction. (2) The act of moving a rudder with angle on it to the same angle on the opposite side.

SHIFT COLORS—To change the arrangement of the colors upon getting underway or coming to moorings.

SHIP—(1) Any large seagoing vessel capable of extended independent operation. (2) To take on water unintentionally.

SHIP OVER—To reenlist in the Navy.

SHIPSHAPE—Neat, clean, taut, in fine shape.

SHOAL—Similar to a reef, but more gradual in its rise from the floor of the ocean.

SHORE—(1) The land in general, but usually refers to that part adjacent to the water. (2) A timber used in damage control to brace bulkheads and decks.

SHROUD—A line or wire that provides athwartship support for a mast.

SICK BAY—Shipboard space used as a hospital.

SIDE BOY—One of a group of seamen who form two ranks at the gangway as part of the ceremonies conducted for visiting officials.

SIDE LIGHT—One of the required running lights. The starboard *side light* is green and the port *side light* is red.

SIDE PORT—A watertight opening in a ship's side that is used as a doorway.

SIGHT—(1) To see for the first time, as to *sight* a ship on the horizon. (2) A celestial observation.

SKYLARK—To engage in irresponsible horseplay.

SLACK—(1) To allow a line to run out. (2) A *slack* ship is one that has little or no discipline.

SLIP—(1) To free a ship of its anchor by disconnecting the cable or by allowing its bitter end to run out. (2) A narrow space between two piers, or the space between two rows of piles that guide a ferryboat into its berth.

SMALL CRAFT—Any less-than-ship-sized vessel.

SMALL STORES—Personal needs for sailors, such as articles of clothing.

SMART—Snappy, seamanlike, shipshape.

SNAKING—Netting stretched between the gunwales and footrope (see Lifeline) to prevent objects from going over the side.

SNUB—The act of suddenly checking a line that is running out under a strain.

SOPA—Abbreviation for senior officer present afloat.

SOUND—(1) To determine the depth of water. (2) The act of a whale or similar creature in diving deep. (3)

A body of water between the mainland and a large coastal island.

SPANNER—A wrench used for tightening couplings on a fire hose.

SPAR—A long cylindrical member of wood or metal, tapered at the ends; usually attached to a mast for use as a boom or for the attachment of equipment such as signal halyards. See Boat Boom; Yardarm.

SPAR BUOY—A buoy shaped like a spar. Usually indicates special areas, such as a quarantine anchorage (yellow) or normal anchorage (white), but may be used to indicate a channel (painted red or green, as appropriate).

SPECIAL SEA DETAIL—Personnel aboard ship assigned special duties connected with leaving and entering port.

SPLICE—The act of intertwining strands of lines or wires to join them together or to make an eye; the joint so made.

SPRING—A mooring line that leads forward (or aft) at an angle from ship to pier. Its purpose is to check the fore and aft movement of the ship.

SPRING LAY—Wire rope in which each strand consists partly of wire and partly of tarred hemp or similar fiber.

SQUADRON—Two or more divisions of ships or aircraft.

SQUARE AWAY—Put in proper order; make things shipshape.

SQUARE KNOT—Simple knot used for bending two lines together or for bending a line to itself.

STACK—Shipboard chimney.

STANCHIONS—Vertical posts used for supporting decks; smaller, similar posts used for supporting lifelines, awnings, etc.

STAND BY—To "prepare for" or "make ready to."

STANDING LIGHTS—Red night-lights throughout the interior of a ship.

STANDING PART—The main part of a line, as distinguished from its ends.

STARBOARD—Direction to the right of the centerline as one faces forward.

STATEROOM—A living compartment for an officer or for a small number of officers.

STATION—(1) An individual's place of duty. (2) Position of a ship in formation. (3) Location of persons and equipment having a specific purpose, as a gun control *station*. (4) Order to assume a post of duty, as "Station the special sea and anchor detail."

STAY—Any piece of standing rigging, except a shroud, providing support only.

STEADY (STEADY SO) (STEADY AS YOU GO) (STEADY AS SHE GOES)—Order to the helmsman to steer the ship on the course it is heading at the time the order is given.

STEM—The forward vertical extension of the keel.

STERN—The aftermost part of a vessel.

STERN HOOK—Member of a boat's crew whose station is aft.

STERN LIGHT—White navigation light that can be seen only from astern to 6 points on either quarter (total of 12 points, or 135 degrees).

STERNPOST—The after vertical extension of the keel.

STERN SHEETS—The after passenger space in an open boat.

STOP—A short line attached to the edge of an awning, boat cover, etc.; used to lash the cover to a support.

STOW—To store or pack articles or cargo in a space.

STRAKE—Fore-and-aft strip of plating in the shell or in a deck.

STRAND—(1) One of the main subdivisions of a line or wire. (2) The act of a vessel in going aground.

STRINGER—(1) A longitudinal frame providing strength to a ship's sides. (2) Along timber between piles at the edge of a pier.

STRUCTURAL BULKHEAD—Transverse-strength bulkhead that forms a watertight boundary.

SUPERSTRUCTURE—The ship's structure above the main deck, exclusive of top-hamper.

SWAB—Same as, but never referred to as, a mop.

SWAMP—The filling of an open boat with water taken over the side.

TACKLE—See Purchase.

TAFFRAIL—The rail around the stern of a ship or boat.

TARPAULIN—Canvas used as a cover.

TAUT—Under tension. A ship noted for its high state of discipline and efficiency is known as a *taut* ship.

TENDER—(1) One who serves as a precautionary standby, as the line *tender* for a diver. (2) An auxiliary vessel that acts as a support ship for other ships, as a destroyer *tender*.

THREEFOLD PURCHASE—A tackle containing two three-sheave blocks.

THWART—Plank set athwartships just below the gunwales in an open boat; acts as a seat and provides support to the sides.

TOPSIDE—Generally refers to weather decks.

TRANSVERSE FRAME—Structural member that extends outward from the keel and upward to the main deck.

TRICE UP—To secure bunks by hauling them up and hanging them off (securing them) on their chains.

TRUNK—The uppermost tip of a mast.

TURNBUCKLE—Device for setting up a tension, as in a lifeline, by turning a buckle into which two eyebolts are threaded.

TURN OF THE BILGE—Where the side meets the bottom.

TURN IN—(1) Retire to bed. (2) Return articles to the issue room.

TURN OUT—(1) Get out of bed. (2) Order out a working party or other groups, as to *turn out* the guard.

TURN TO—Start working.

UP ALL LATE BUNKS—An order to personnel entitled to sleep after reveille to get up.

UPPER DECK—The first deck above the main deck.

VEER—(1) To allow a line, wire, or chain to run out by its own weight. (2) To swerve. (3) Act of the wind in changing direction clockwise.

VOID—An empty tank.

WAIST—The amidships section of the main deck.

WAKE—Trail left by a vessel, or other object, moving through the water.

WARDROOM—Officers' messing compartment.

WATCH—(1) One of the periods (usually 4 hours) into which a day is divided. (2) A particular duty, as

lifebuoy watch. (3) The act of a buoy or other marker in indicating the position of a sunken object.

WATERTIGHT INTEGRITY—The degree of quality of watertightness.

WAY—(1) Horizontal motion of a floating body. (2) Launching track in a shipbuilding yard.

WEATHER DECK—Any deck exposed to the elements.

WET DOCK—A basin formed, by the construction of barriers with gates, in a harbor of great tidal ranges to prevent ships from being stranded during low tides. Ships enter the basin at high tide, the gates are closed, and the water is retained in the basin when the tide ebbs.

WHARF—Similar to a quay, but constructed in the fashion of a pier.

WHIPPING—Binding on the end of a line or wire to prevent unraveling.

WILDCAT—That portion of a windlass which engages the links of the anchor chain so that the anchor can be heaved in.

WINDWARD—Toward the direction from which the wind is blowing.

YARD—Spar set athwartships across the upper part of a mast.

YARDARM—The port or starboard half of the horizontal crosspiece of the mast that is either the port or starboard yardarm.

YAW—The act of a vessel when its heading is thrown wide of its course by a force from astern, such as a heavy following sea.

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